



HP Split 13 x2 PC

Maintenance and Service Guide

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First Edition: July 2013


Document Part Number: 726516-001

Product notice

This guide describes features that are common to most models. Some features may not be available on your computer.

Not all features are available in all editions of Windows 8. Your computer may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 8 functionality. See <http://www.microsoft.com> for details.

Important Notice about Customer Self-Repair Parts

 **CAUTION:** Your computer includes parts that should only be accessed by an authorized service provider. Accessing parts described in the chapter titled, "Removal and replacement procedures for Authorized Service Provider only parts," can damage the computer or void your warranty.

Safety warning notice


 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap. Use the device only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The device and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

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1 Product description

Category	Description	Tablet	Base
Product Name	HP Split 13 x2 PC	✓	✓
Processors	Intel® Core™ i5-3339Y (1.5-GHz/2.0-MHz, 3-MB L3 cache, 1600-MHz DDR3L, 7 W)	✓	
	Intel Core i3-3229Y (1.4-GHz, 3-MB L3 cache, 1600-MHz DDR3L, 7 W)	✓	
Chipset	Intel UM77	✓	
Graphics	Intel HD Graphics 4000 for Core i5/i3 processors	✓	
	Intel HD Graphics for Pentium processors		
Panel	33.8-cm (13.3-in), HD Anti-glare LED (1366×768), slim 3.2-mm. WVA, 200 nits	✓	
	Supports 16:9 wide aspect ratio	✓	
	Support for eDP, touchscreen, multi-touch enabled	✓	
Memory	Supports up to 8-GB system memory	✓	
	No support for 32-bit operating system		
	DDR3L-1600-MHz, single channel support	✓	
	Supports the following configurations:	✓	
	8192 (8192 × 1) 4096 (4096 × 1) 2048 (2048 × 1)		
Storage	Tablet:	✓	
	Supports mSATA 3: <ul style="list-style-type: none"> 64-GB 128-GB 		
	Base:	✓	
	Supports optional 7-mm SATA hard drives: <ul style="list-style-type: none"> 500-GB, 5400-rpm 320-GB, 5400-rpm 		

Category	Description	Tablet	Base
Audio	Two integrated stereo speakers	√	
	Beats Audio	√	
Webcam and microphone	HP TrueVision Full HD Webcam, 2 MP, 1080p by 30 frames per second	√	
	Fixed, no tilt, activity LED, USB 2.0		
	Dual array digital microphones with beam forming, echo cancellation, and noise suppression	√	
Sensor	Accelerometer + Gyroscope + eCompass	√	
Wireless	Integrated WLAN options by way of wireless module	√	
	Dual antennas	√	
	Supports the following WLAN formats:	√	
	Broadcom 4352 802.11 a/c + Bluetooth 4.0 combo adapter		
	Ralink RT3290LE 802.11 b/g/n + Bluetooth 4.0 combo adapter		
External media card	Tablet:	√	
	Micro Secure Digital (SD) Media Reader		
	Push-push insertion/removal		
	Base:		√
	HP Multi-Format Digital Media Reader		
Internal card expansion	One half-size mini-card slot for WLAN	√	
	One half-size mini-card slot for mSATA storage	√	
Ports	Tablet	√	
	Docking connector (to base). Supports charging, audio-out, and video out.		
	Headphone/mic-in combo jack		
	DC-in port		
	Supports docking station capabilities (charging, audio-out, and video-out)		
	Base:		√
	(1) USB 3.0		
	(1) USB 2.0		
	Headphone/line-out and mic-in combo jack		
	Docking connector (to tablet)		
	DC-in port		
	HDMI v1.4a supporting up to 1080p @ 60 Hz		


Category	Description	Tablet	Base
Keyboard	Full size, dura coat, island-style keyboard		✓
	Taps enabled as default		✓
	Clickpad with image sensor		✓
	Supports Windows 8 modern touchpad gestures		✓
	Multi-touch gestures enabled		✓
Power requirements	Supports the following HP AC adapters:	✓	✓
	45-W Smart nPFC, 3-pin, 4.5-mm connector, 90-degree plug design		
	65-W EM Smart nPFC, 3-pin, 4.5-mm connector, 90-degree plug design		
	1 meter (3.3 ft) length power cord		
	Tablet:	✓	
	3-cell, 33 WHr battery (self-contained)		
Operating system	Base:		✓
	3-cell, 32 WHr battery (self-contained)		
	Preinstalled:	✓	
	Windows 8 Professional (64-bit)		
	Windows 8 Standard (64-bit)		
Serviceability	FreeDOS		
	Ubuntu Linux		
	End-user replaceable parts:	✓	✓
	AC adapter		

2 External component identification



Multimedia features





Here are some of the entertainment features on your computer.



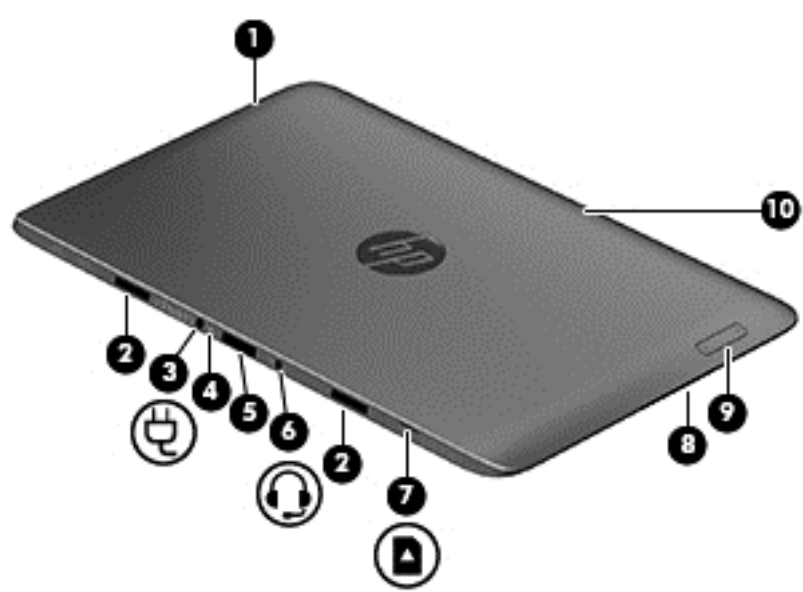
Component	Description	
(1) 	Audio-out (headphone) jack/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone.</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i>.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p> <p>NOTE: Stand-alone microphones and headphones with separate microphone jacks are not supported.</p>
(2)	Volume button	<p>Controls speaker volume.</p> <ul style="list-style-type: none"> • To increase speaker volume, press the + edge of the button. • To decrease speaker volume, press the - edge of the button.









Component	Description	
(1)	Internal microphones (2)	Record sound.
(2)	Webcam light	On: The webcam is in use.
(3)	HP TrueVision Full HD Webcam	Records video, captures still photographs, allows you to video conference and chat online using streaming video.
		 <p>Swipe from the right edge of the TouchPad or touch screen to display the charms, tap Search, and then tap the search box. type c, and then tap CyberLink YouCam from the list of applications.</p> <p>– or –</p>  <p>From the Start screen, type c, and then select CyberLink YouCam from the list of applications.</p>
(4)	Ambient light sensor	Automatically adjusts the display brightness based on the lighting conditions in your environment.
(5)	Speakers (2)	Produce sound.

Component	Description	
(6) 	HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(7) 	USB 3.0 port	Connects an optional USB device.
(8)	b key	<p>Enables or disables Beats Audio when pressed in combination with the fn key.</p> <p>Beats Audio is an enhanced audio feature that provides a deep, controlled bass while maintaining a clear sound. Beats Audio is enabled by default.</p> <p>You can also view and control the bass settings through the Windows operating system. To view and control the bass properties, open the Beats Audio Control Panel.</p> <p>To open Beats Audio Control Panel, from the Start screen on the keyboard dock, type c, select Control Panel, select Hardware and Sound, and then select Beats Audio Control Panel.</p>
(9) 	Audio-out (headphone) jack/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone.</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i>.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p> <p>NOTE: Stand-alone microphones and headphones with separate microphone jacks are not supported.</p>
(10) 	USB 2.0 port	Connects an optional USB device.

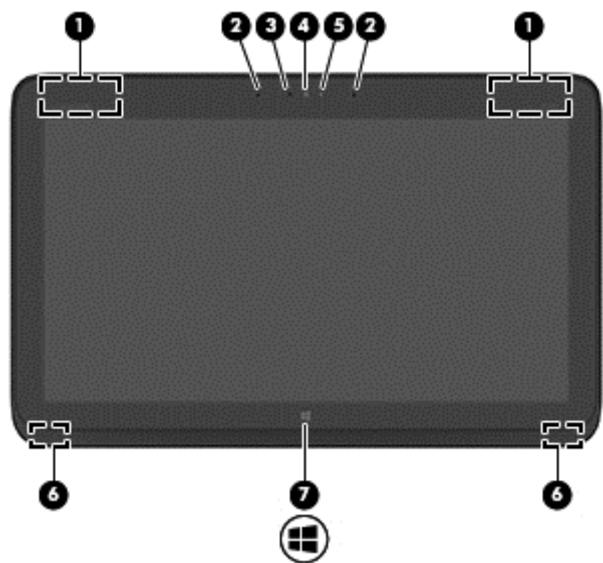
Tablet edge components






Components		Description
(1)	 Power button	<ul style="list-style-type: none">When the computer is off, press the button to turn on the tablet.When the computer is on, press the button briefly to initiate Sleep.When the computer is in the Sleep state, press the button briefly to exit Sleep. <p>CAUTION: Pressing and holding down the power button results in the loss of unsaved information.</p> <p>NOTE: If the computer has stopped responding and Microsoft® Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the tablet.</p> <div> Swipe from the right edge of the TouchPad or touch screen to display the charms, tap Search, and then tap the search box. In the search box, type <code>power</code>, tap Settings, and then tap Power options.</div> <p>– or –</p> <div> To learn more about your power settings, on the Start screen, type <code>p</code>. In the search box, type <code>power</code>, select Settings, and then select Power options.</div>
(2)	Alignment post connectors (2)	Align and attach the tablet to the keyboard dock.

Components	Description
(3)  Power connector	Connects an AC adapter.
(4) AC adapter/Battery light	<ul style="list-style-type: none"> • White: The AC adapter is connected and the battery is charged. • Blinking white: The battery has reached a low battery level. • Amber: The AC adapter is connected and the battery is charging. • Off: The computer is using DC power.
(5) Docking port	Connects the tablet to the keyboard dock.
(6)  Audio-out (headphone) jack/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable.</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i>.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p> <p>NOTE: Stand-alone microphones and headphones with separate microphone jacks are not supported.</p>
(7)  Micro SD memory card reader	Supports micro Secure Digital (SD) memory cards.
(8) Vent	<p>Enables airflow to cool internal components.</p> <p>NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.</p>
(9) Volume button	<p>Controls speaker volume on the tablet.</p> <ul style="list-style-type: none"> • To increase speaker volume, press the + edge of the button. • To decrease speaker volume, press the – edge of the button.
(10) Vent	<p>Enables airflow to cool internal components.</p> <p>NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.</p>

Display

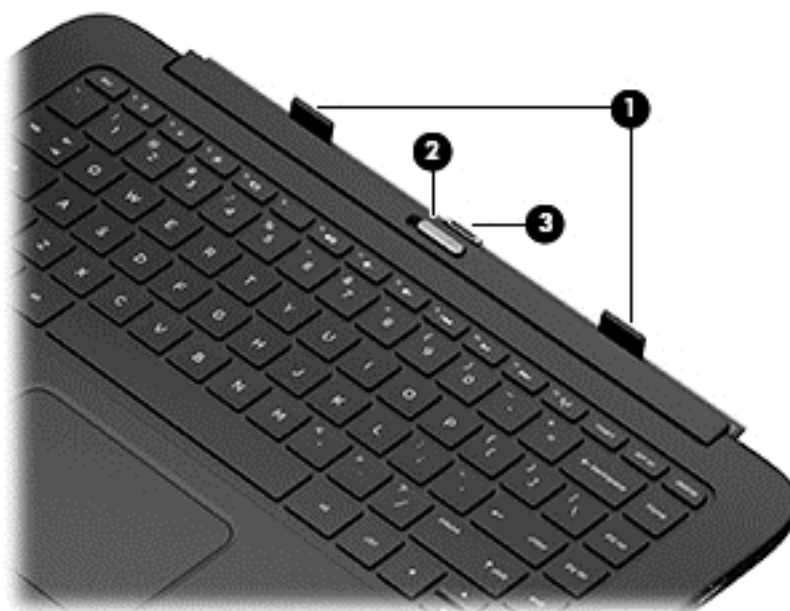


Component		Description
(1)	WLAN antennas (2)*	Send and receive wireless signals.
(2)	Internal microphones (2)	Record audio, automatically filtering out the noise around you and cancelling echoes.
(3)	Webcam light	On: The webcam is on.
(4)	HP TrueVision Full HD Webcam	Records video, captures still photographs, and provides access to video conferences and online chat by means of streaming video.
<div>Swipe from the right edge of the TouchPad or touch screen to display the charms, tap Search, and then tap the search box. Type c, and then tap CyberLink YouCam from the list of applications.</div> <div>– or –</div> <div>From the Start screen, type c, and then select CyberLink YouCam from the list of applications.</div>		
(5)	Ambient light sensor	Automatically adjusts the display brightness based on the lighting conditions in your environment.
(6)	Speakers (2)	Produce sound.

Component		Description
(7)	 Windows button	Returns you to the Start screen from an open app or the Windows desktop.
		NOTE: Pressing the Windows button again returns you to the previous screen.
<p>*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas and proximity sensors free from obstructions. For wireless regulatory notices, see the section of the <i>Regulatory, Safety, and Environmental Notices</i> that applies to your country or region.</p>		

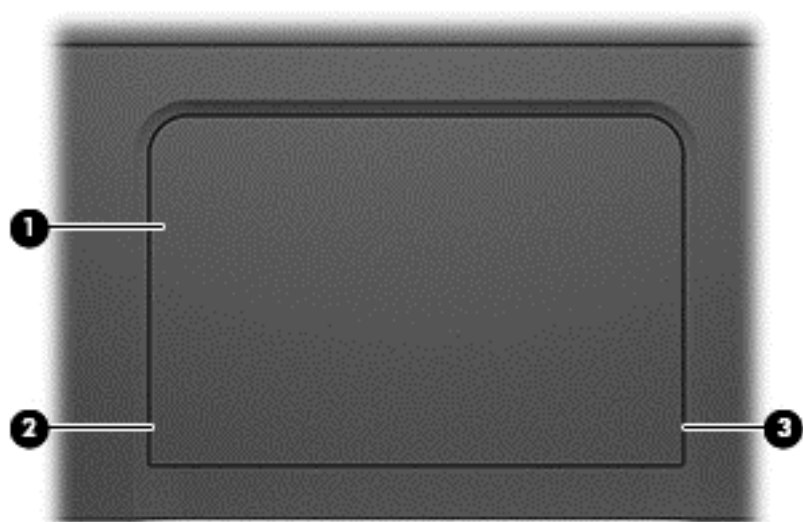
Keyboard dock

Top



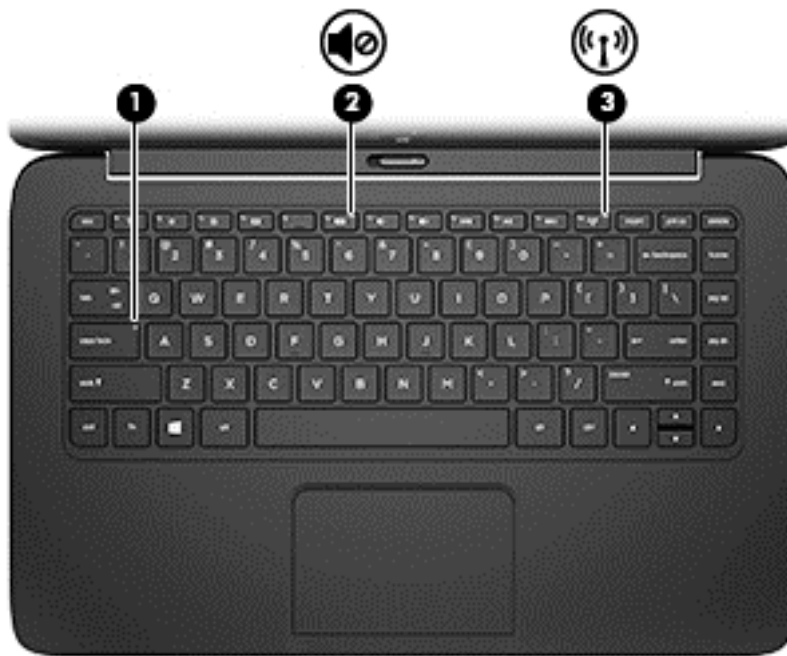
Component		Description
(1)	Alignment posts	Align and attach the tablet to the keyboard dock.
(2)	Release latch	Releases the tablet from the keyboard dock. To release the tablet, slide the release latch to the left.
(3)	Docking connector	Connects the tablet to the keyboard dock.



TouchPad



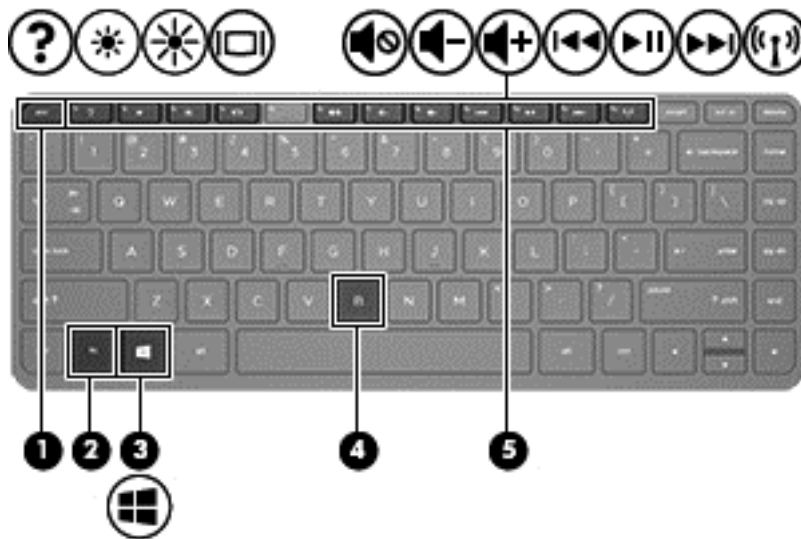
Component		Description
(1)	TouchPad zone	Reads your finger gesture to move the pointer or activate items on the screen.
(2)	Left TouchPad button	Functions like the left button of an external mouse.
(3)	Right TouchPad button	Functions like the right button on an external mouse.


Lights



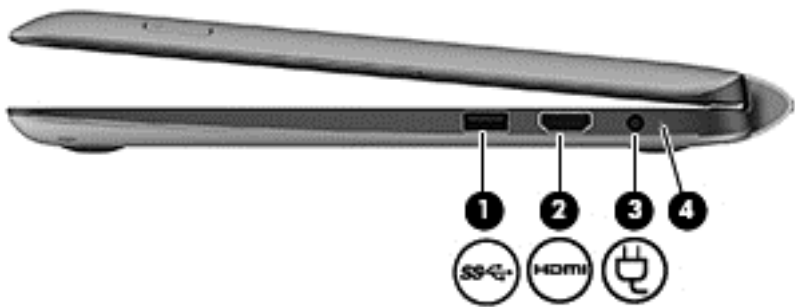
Component		Description
(1)	Caps lock light	<ul style="list-style-type: none">• White: Caps lock is on.• Off: Caps lock is off.
(2)	 Mute light	<ul style="list-style-type: none">• Amber: Computer sound is off.• Off: Computer sound is on.
(3)	 Wireless light	<ul style="list-style-type: none">• White: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on.• Amber: All wireless devices are off.




Keys



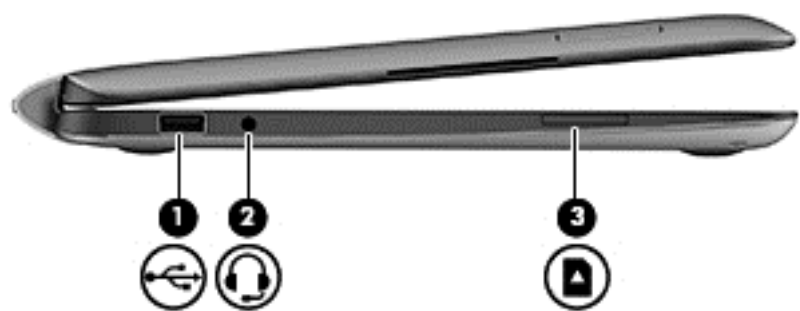
Component	Description
(1) esc key	Displays system information when pressed in combination with the fn key.
(2) fn key	Displays system information when pressed in combination with the esc key, and enables or disables Beats Audio when pressed in combination with the fn key.
(3)  Windows key	Returns you to the Start screen from an open app or the Windows desktop. NOTE: Pressing the Windows key again returns you to the previous screen.
(4) b key	Enables or disables Beats Audio when pressed in combination with the fn key.
(5) Action keys	Execute frequently used system functions. NOTE: Action keys do not display or function from the on-screen tablet keyboard.




Right side



Component		Description
(1)		USB 3.0 port Connects an optional USB device.
(2)		HDMI port Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI device.
(3)		Power connector Connects an AC adapter.
(4)	AC adapter/Battery light <ul style="list-style-type: none">White: The AC adapter is connected and the battery is charged.Blinking white: The battery has reached a low battery level.Amber: The AC adapter is connected and the battery is charging.Off: The computer is using battery power.	

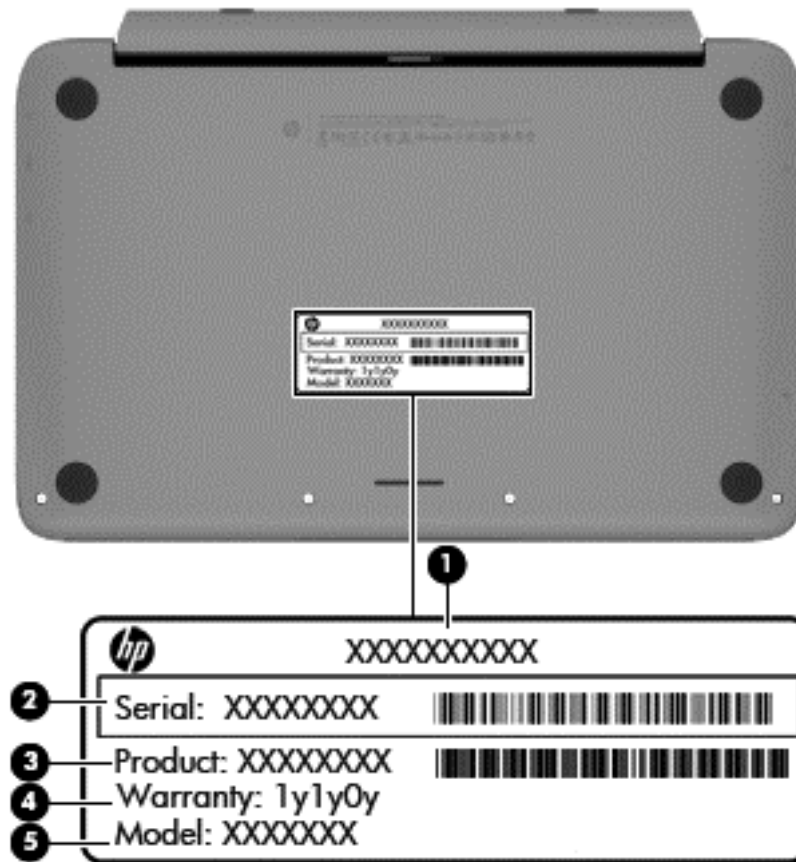
Left side



Component		Description
(1)		USB 2.0 port Connects an optional USB device.
(2)		Audio-out (headphone) jack/Audio-in (microphone) jack Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. WARNING! To reduce the risk of personal injury, adjust the volume before using headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i> . NOTE: When a device is connected to the jack, the computer speakers are disabled. NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone). NOTE: Stand-alone microphones and headphones with separate microphone jacks are not supported.
(3)		Memory card reader Reads data from and writes data to memory cards such as SD.

Locating system information

Important system information is located on the bottom edge of the tablet. You may need the information when traveling internationally or when you contact support:

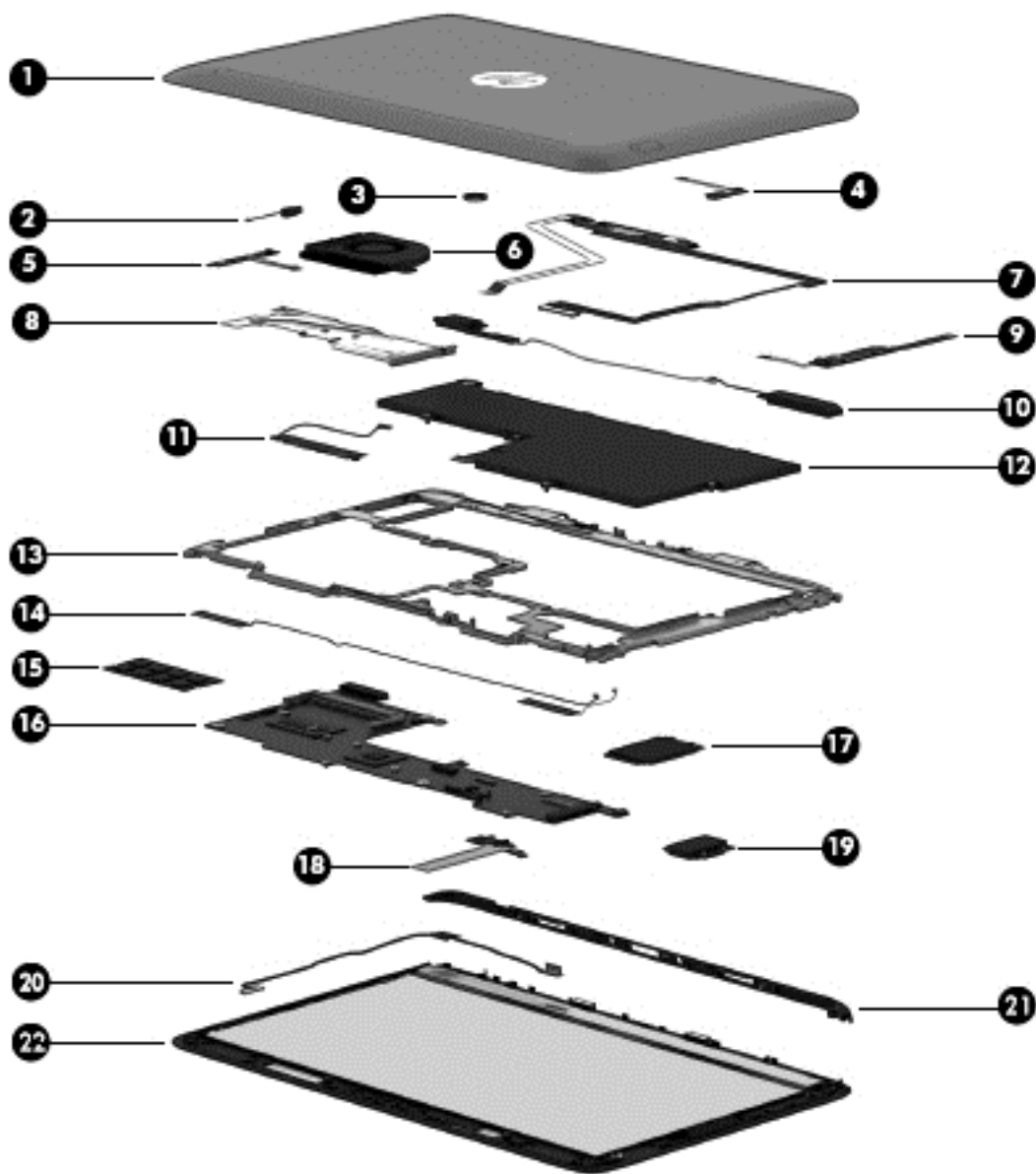


Item	Description
(1)	<ul style="list-style-type: none">Model name (1). This is the product name affixed to the front of the computer.Serial number (s/n) (2). This is an alphanumeric identifier that is unique to each product.Part number/Product number (p/n) (3). This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.Warranty period (4). This number describes the duration (in years) of the warranty period for the computer.Model description (select models only) (5). This is the alphanumeric identifier used to locate documents, drivers, and support for the computer.

Using Windows, briefly press the **fn+esc** key combination to display the System Information screen, which provides the product name and serial number of your computer, as well as information about the memory, processor, BIOS, and keyboard.

3 Illustrated parts catalog

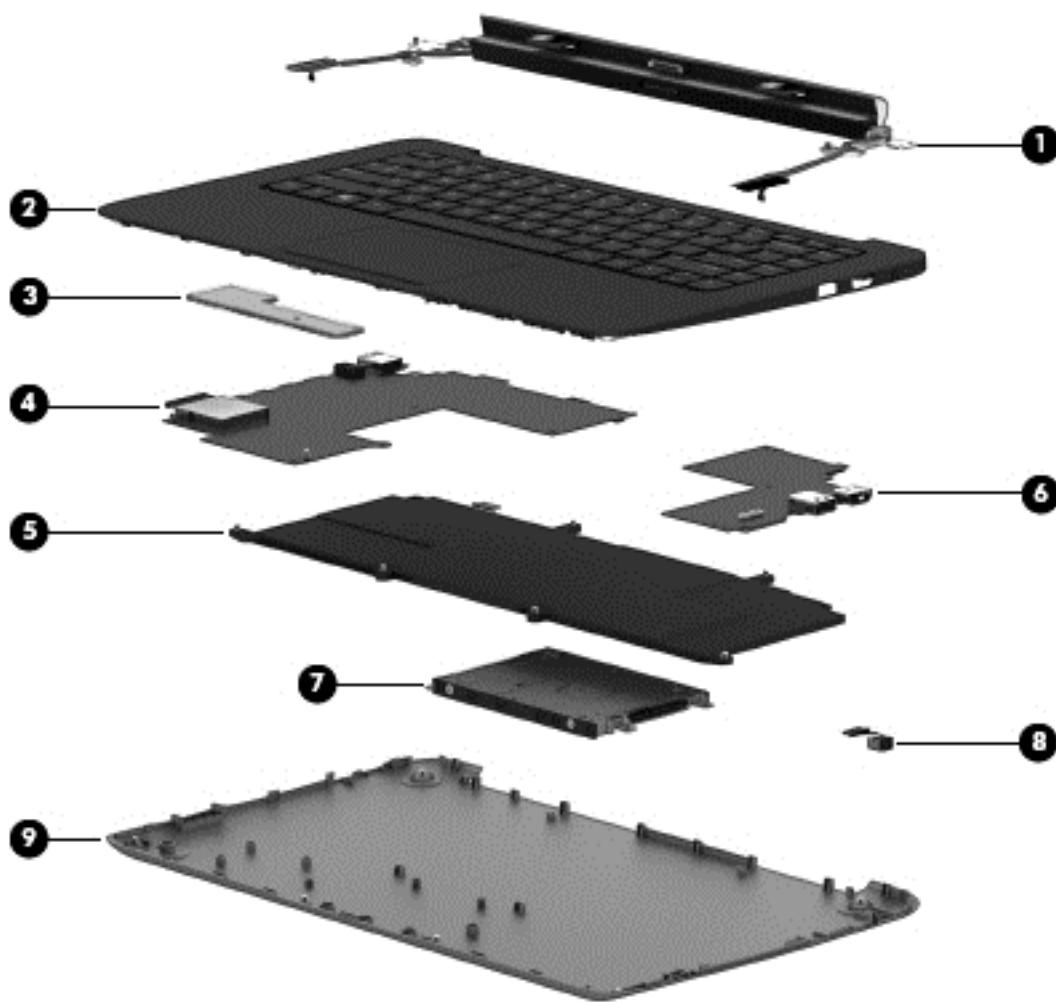
Tablet components



Item	Component	Spare part number
(1)	Display rear cover	
	For use in silver models	732269-001
	For use in red models	733905-001
(2)	Vibration module	732272-001
(3)	RTC battery	739054-001
(4)	Power button board (includes cable)	732281-001
(5)	Volume control board (includes cable)	732282-001
(6)	Fan	732273-001
(7)	Audio board (includes audio cable and HDMI/dock cable)	732284-001
(8)	Heat sink (includes thermal grease)	732274-001
(9)	TouchScreen board (includes cable)	not spared
(10)	Speaker Kit (includes left and right speakers)	732292-001
(11)	Webcam (includes cable)	732299-001
(12)	Battery (3-cell, 33-WHr, 3.05-AH)	725606-001
(13)	Frame	not spared
(14)	Antennas (includes main and auxiliary antennas)	732268-001
(15)	Memory modules (PC3L-12800, 1600 MHz)	
	8 GB	693374-005
	4 GB	691740-005
	2 GB	691739-005
(16)	System board (includes thermal grease)	
	Non-Windows 8 models with an Intel Core i5-3339Y processor	732295-001
	Windows 8 Standard models with an Intel Core i5-3339Y processor	732295-501
	Non-Windows 8 models with an Intel Core i3-3229Y processor	732296-001
	Windows 8 Standard models with an Intel Core i3-3229Y processor	732296-501
(17)	mSATA SSD drive	
	128-GB	732294-001
	64-GB	732293-001
(18)	WLAN module	
	Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter	690020-005
	Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter	724935-005
(19)	Card reader (includes cable)	732283-001

Item	Component	Spare part number
(20)	Display panel cable	732271-001
(21)	Bottom trim	
	For use in models that use the following wireless module: Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter (690020-005)	
	• Asia/Pacific region	732275-001
	• EMEA region	732276-001
	• North American and Latin American regions	732277-001
	• Taiwan and South Korea	735215-001
	For use in models that use the following wireless module: Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter (724935-005)	
	• Asia/Pacific region	735216-001
	• EMEA region	735217-001
	• North American and Latin American regions	735218-001
	• Taiwan and South Korea	735219-001
(22)	Display panel	732289-001

Keyboard dock parts



Item	Component	Spare part number
(1)	Hinge assembly	
	For use in silver models	732280-001
	For use in red models	733906-001
(2)	Top cover with keyboard	
	For use in the United States	732298-001
	For use in the United Kingdom and Singapore	732298-031
	For use in Germany	732298-041
	For use in France	732298-051
	For use in Italy	732298-061

Item	Component	Spare part number
	For use in Spain	732298-071
	For use in Portugal	732298-131
	For use in Turkey	732298-141
	For use in Greece	732298-151
	For use in Latin America	732298-161
	For use in Saudi Arabia	732298-171
	For use in Hungary	732298-211
	For use in Russia	732298-251
	For use in Bulgaria	732298-261
	For use in Romania	732298-271
	For use in Thailand	732298-281
	For use in Japan	732298-291
	For use in Belgium	732298-A41
	For use in South Korea	732298-AD1
	For use internationally	732298-B31
	For use in Slovenia	732298-BA1
	For use in Israel	732298-BB1
	For use in Switzerland	732298-BG1
	For use in Canada	732298-DB1
	For use in Denmark, Finland and Norway	732298-DH1
	For use in the Czech Republic and Slovakia	732298-FL1
(3)	Weight	not spared
(4)	USB board (includes cable)	732285-001
(5)	Battery (3-cell, 32-WHr, 2.96-AH)	725607-001
(6)	HDMI board	732287-001
(7)	Hard drive	
	500-GB, 5400-rpm	683802-005
	320-GB, 5400-rpm	645193-005
	Hard Drive Hardware Kit (includes cable, cover, and screws)	732279-001
(8)	DC-in power connector	732288-001
(9)	Base enclosure	

Item	Component	Spare part number
	For use in silver models	732270-001
	For use in red models	733904-001

Miscellaneous parts

Description	Spare part number
Rubber Kit (includes dock rear rubber)	
For use in silver models	732290-001
For use in red models	733907-001
Screw Kit	732291-001
Hard Drive Hardware Kit (includes cable, cover, and screws)	732279-001
Adapters	
HDMI to VGA adapter	701943-001
RJ-45 to USB adapter	704927-001
AC adapters	
65-W AC adapter	714657-001
45-W AC adapter	721092-001
Power cords	
For use in Argentina	490371-D01
For use in Australia	490371-011
For use in the People's Republic of China	490371-AA1
For use in Denmark	490371-081
For use in Europe, the Middle East, and Africa	490371-021
For use in India	490371-D61
For use in Israel	490371-BB1
For use in Italy	490371-061
For use in Japan	490371-291
For use in South Africa	490371-AR1
For use in South Korea	490371-AD1
For use in Switzerland	490371-111
For use in Thailand	490371-201

Description	Spare part number
For use in the United Kingdom	490371-031
For use in the United States	490371-001

Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America
490371-011	Power cord for use in Australia
490371-021	Power cord for use in Europe, the Middle East and Africa
490371-031	Power cord for use in the United Kingdom and Singapore
490371-061	Power cord for use in Italy
490371-081	Power cord for use in Denmark
490371-111	Power cord for use in Switzerland
490371-201	Power cord for use in Thailand
490371-291	Power cord for use in Japan
490371-AA1	Power cord for use in the People's Republic of China
490371-AD1	Power cord for use in South Korea
490371-AR1	Power cord for use in South Africa
490371-BB1	Power cord for use in Israel
490371-D01	Power cord for use in Argentina
490371-D61	Power cord for use in India
645193-005	320-GB, 5400-rpm hard drive
683802-005	500-GB, 5400-rpm hard drive
690020-005	Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter
691739-005	2-GB memory module (PC3L-12800, 1600 MHz, SODIMM)
691740-005	4-GB memory module (PC3L-12800, 1600 MHz, SODIMM)
693374-005	8-GB memory module (PC3L-12800, 1600 MHz, SODIMM)
701943-001	HDMI to VGA adapter
704927-001	RJ-45 to USB adapter
714657-001	65-W AC adapter
721092-001	45-W AC adapter

Spare part number	Description
724935-005	Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter
725606-001	3-cell, 33-WHr, 3.05-AH battery (Tablet)
725607-001	3-cell, 32-WHr, 2.96-AH battery (Keyboard dock)
732268-001	Antennas (includes main and auxiliary antennas)
732269-001	Display rear cover for use in silver models
732270-001	Base enclosure for use in silver models
732271-001	Display cable
732272-001	Vibration module
732273-001	Fan
732274-001	Heat sink (includes thermal grease)
732275-001	Bottom trim for use in models in the Asia/Pacific region that use the following wireless module: Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter (690020-005)
732276-001	Bottom trim for use in models in the EMEA region that use the following wireless module: Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter (690020-005)
732277-001	Bottom trim for use in models in the North American and Latin American regions that use the following wireless module: Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter (690020-005)
732278-001	TouchPad board (includes cable)
732279-001	Hard Drive Hardware Kit (includes cable, cover, and screws)
732280-001	Display hinge assembly for use in silver models
732281-001	Power button board (includes cable)
732282-001	Volume control board (includes cable)
732283-001	Card reader (includes cable)
732284-001	Audio board (includes audio cable and HDMI/dock cable)
732285-001	USB board (includes cable)
732287-001	HDMI board
732288-001	Power connector
732289-001	Display panel
732290-001	Rubber Kit for use in silver models (includes dock rear rubber)
732291-001	Screw Kit
732292-001	Speaker Kit (includes left and right speakers)
732293-001	64-GB mSATA SSD drive
732294-001	128-GB mSATA SSD drive

Spare part number	Description
732295-001	System board for use with non-Windows 8 models with an Intel Core i5-3339Y processor (includes processor and replacement thermal material)
732295-501	System board for use with Windows 8 Standard models with an Intel Core i5-3339Y processor (includes processor and replacement thermal material)
732296-001	System board for use with non-Windows 8 models with an Intel Core i3-3229Y processor (includes processor and replacement thermal material)
732296-501	System board for use with Windows 8 Standard models with an Intel Core i3-3229Y processor (includes processor and replacement thermal material)
732298-001	Top cover with keyboard for use in the United States
732298-031	Top cover with keyboard for use in the United Kingdom
732298-041	Top cover with keyboard for use in Germany
732298-051	Top cover with keyboard for use in France
732298-061	Top cover with keyboard for use in Italy
732298-071	Top cover with keyboard for use in Spain
732298-131	Top cover with keyboard for use in Portugal
732298-141	Top cover with keyboard for use in Turkey
732298-151	Top cover with keyboard for use in Greece
732298-161	Top cover with keyboard for use in Latin America
732298-171	Top cover with keyboard for use in Saudi Arabia
732298-211	Top cover with keyboard for use in Hungary
732298-251	Top cover with keyboard for use in Russia
732298-261	Top cover with keyboard for use in Bulgaria
732298-271	Top cover with keyboard for use in Romania
732298-281	Top cover with keyboard for use in Thailand
732298-291	Top cover with keyboard for use in Japan
732298-A41	Top cover with keyboard for use in Belgium
732298-AD1	Top cover with keyboard for use in South Korea
732298-B31	Top cover with keyboard for use internationally
732298-BA1	Top cover with keyboard for use in Slovenia
732298-BB1	Top cover with keyboard for use in Israel
732298-BG1	Top cover with keyboard for use in Switzerland
732298-DB1	Top cover for use in Canada
732298-DH1	Top cover with keyboard for use in Denmark, Finland, Norway

Spare part number	Description
732298-FL1	Top cover with keyboard for use in the Czech Republic and Slovakia
732299-001	Webcam (includes cable)
733904-001	Base enclosure for use in red models
733905-001	Display rear back cover for use in red models
733906-001	Display hinge assembly for use in red models
733907-001	Rubber Kit for use in red models (includes dock rear rubber)
735215-001	Bottom trim for use in models in Taiwan and South Korea that use the following wireless module: Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter (690020-005)
735216-001	Bottom trim for use in models in the APJ region that use the following wireless module: Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter (724935-005)
735217-001	Bottom trim for use in models in the EMEA region that use the following wireless module: Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter (724935-005)
735218-001	Bottom trim for use in models in the North American and Latin American regions that use the following wireless module: Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter (724935-005)
735219-001	Bottom trim for use in models in Taiwan and South Korea that use the following wireless module: Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter (724935-005)
737898-001	Home LED board
739054-001	RTC battery

4 Removal and replacement procedures preliminary requirements

Tools required

You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screwdriver
- Phillips P0 and P1 screwdrivers
- Torx T8 screwdriver

Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.




NOTE: As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic parts




CAUTION: Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors

 **CAUTION:** When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling

 **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE."

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, and then degrade in the internal layers, reducing its life expectancy.

CAUTION: To prevent damage to the computer when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Use nonmagnetic tools.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

CAUTION: A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels			
Event	Relative humidity		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm $\pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:


- Antistatic tapes
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.


Material	Use	Voltage protection level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5 Removal and replacement procedures for Authorized Service Provider parts

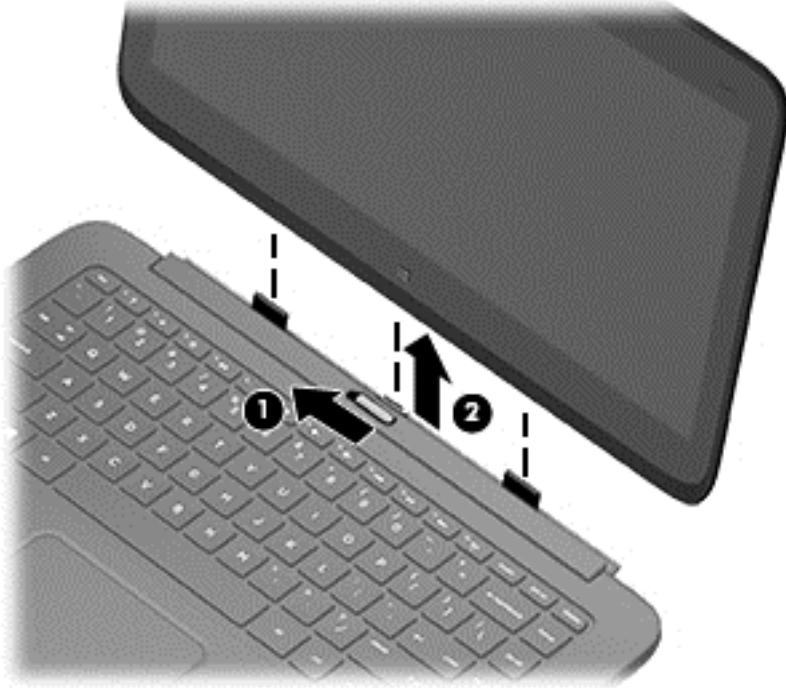
This chapter provides removal and replacement procedures for Authorized Service Provider only parts.

 **CAUTION:** This computer does not have user-replaceable parts. Only HP authorized service providers should perform the removal and replacement procedures described here. Accessing the internal part could damage the computer or void the warranty.

There are as many as 70 screws that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Locating system information on page 17](#) for details.

Releasing the tablet from the keyboard dock



To release the tablet from the keyboard dock, follow these steps:

1. Slide the release latch on the keyboard dock to the left **(1)**.
2. Lift and remove the tablet **(2)**.

Dock components

The following sections describe the removal and replacement procedure of the dock components

Base enclosure

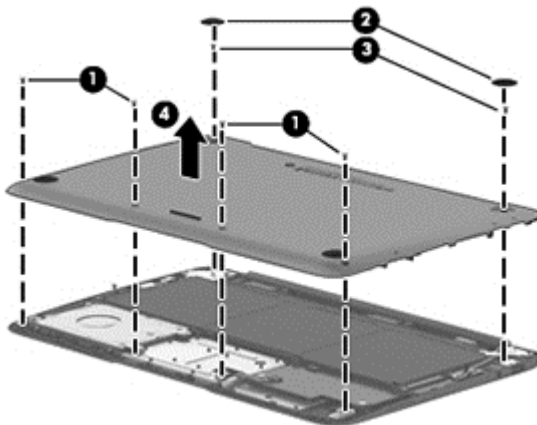
Description	Spare part number
Base enclosure for use in silver models	732270-001
Base enclosure for use in red models	733904-001

Before disassembling the keyboard dock, follow these steps:

1. Shut down the keyboard dock. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).

Remove the base enclosure:

1. Remove the two upper rubber feet **(2)**, and then the two Phillips PM2.5×6.0 screws **(3)** underneath.
2. Separate and release the base enclosure **(4)** from the dock.



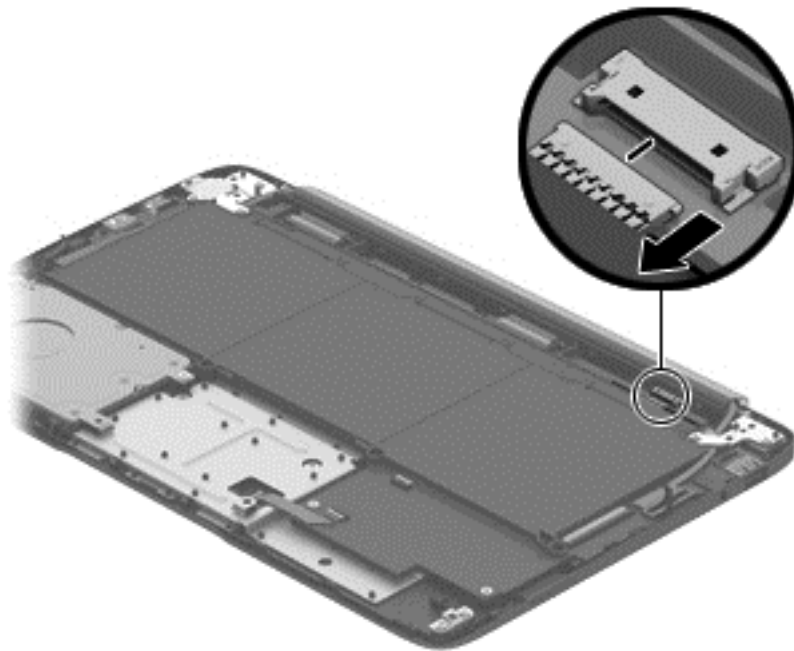
Reverse this procedure to install the base enclosure.

Hard drive

Component	Spare part number
500-GB, 5400-rpm hard drive	683802-005
320-GB, 5400-rpm hard drive	645193-005
Hard Drive Hardware Kit (includes cable, cover, and screws)	732279-001

Before removing the hard drive, follow these steps:

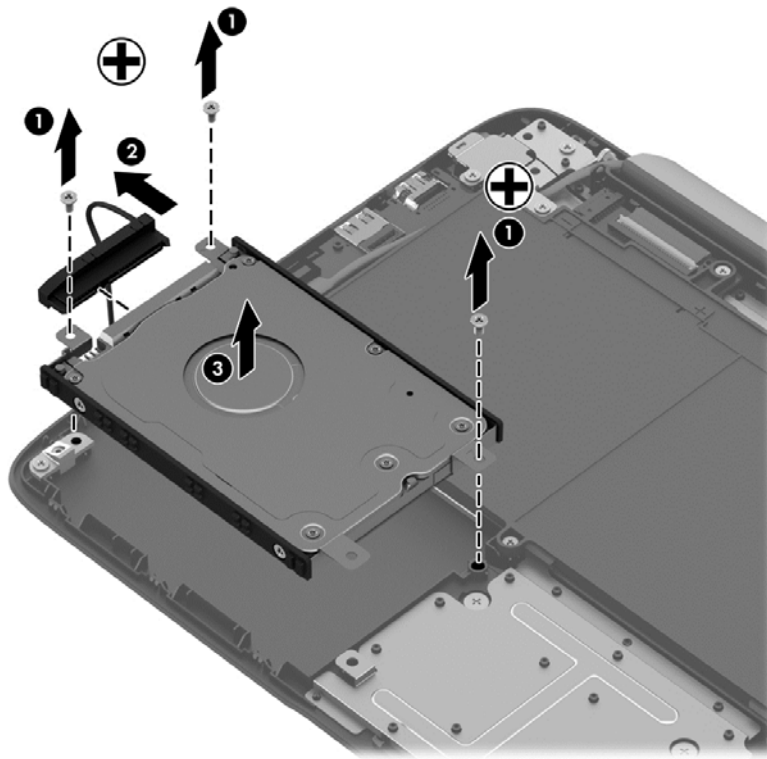
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Disconnect the battery cable.



Remove the hard drive:

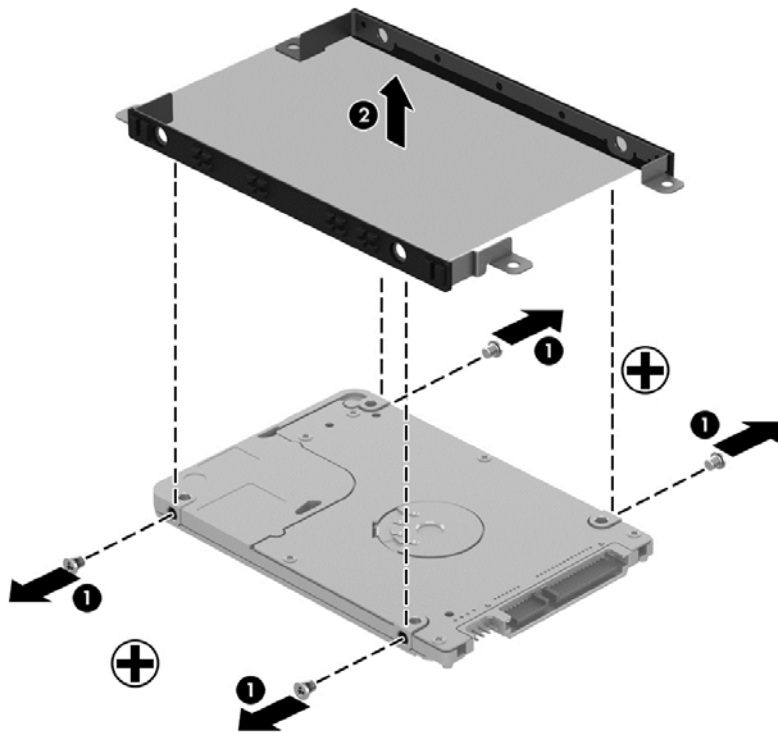
1. Remove the three Phillips PM2.0x5.0 screws **(1)** that secure the hard drive to the dock.
2. Disconnect the hard drive cable **(2)** from the hard drive.

3. Remove the hard drive from the dock **(3)**.



4. If you need to remove the hard drive from the hard drive cover, remove the four Phillips PM3.0x3.0 screws **(1)** that secure the cover to the hard drive.

5. Remove the cover from the hard drive **(2)**.



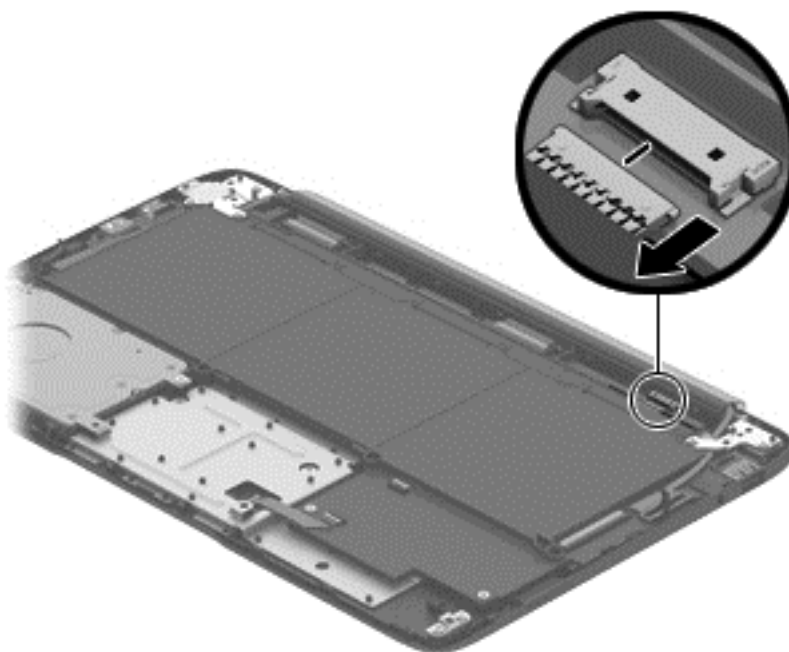
Reverse this procedure to install the hard drive.

Hinge assembly

Description	Spare part number
Hinge assembly for use in silver models	732280-001
Hinge assembly for use in red models	733906-001


Before removing the hinge, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Disconnect the battery cable.

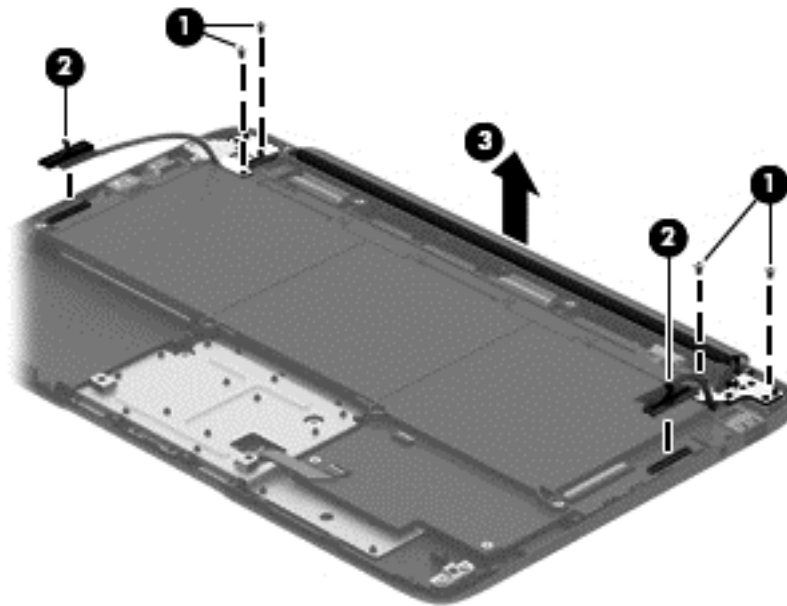


Remove the hinge assembly:

1. Remove the four Phillips PM2.5×5.0 screws **(1)** that secure the hinge to the dock.
2. Disconnect the cables from each side of the dock **(2)**.

 **NOTE:** When disconnecting the cable from the HDMI board, hold the board in place to disconnect the cable. The board is not secured at this point in the disassembly process.

3. Lift the hinge assembly **(3)** from the dock.



Reverse this procedure to install the hinge assembly.

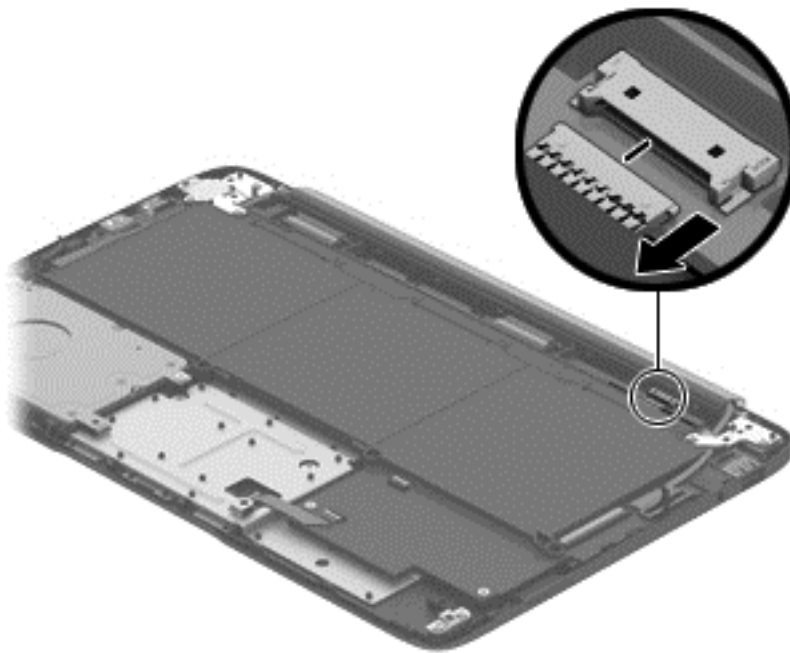
Battery

Description	Spare part number
3-cell, 32-WHr, 2.96-AH battery	725607-001

Before removing the battery, follow these steps:

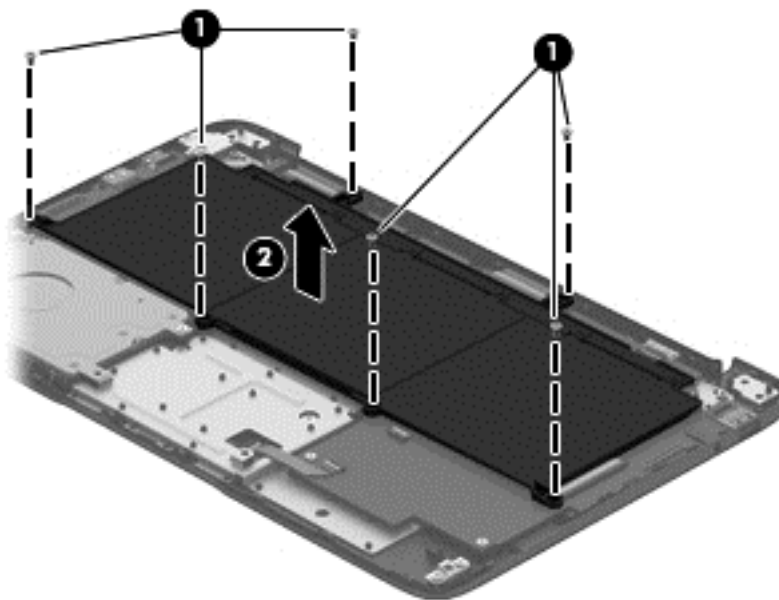
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).

6. Disconnect the battery cable.



Remove the battery:

1. Remove the six Phillips PM2.0×4.0 screws **(1)** that secure the battery to the dock.
2. Remove the battery **(2)** from the dock.



Reverse this procedure to install the battery.

HDMI board

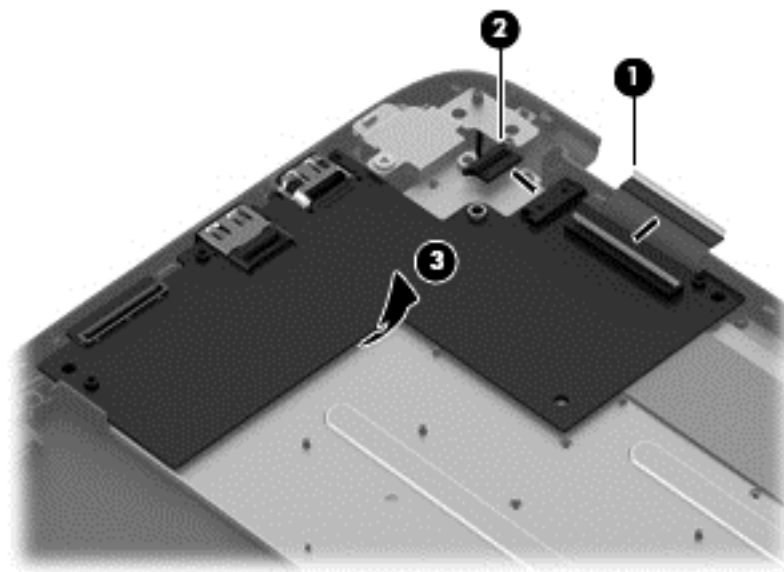
Description	Spare part number
HDMI board	732287-001

Before removing the HDMI board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Remove the battery (see [Battery on page 40](#)).
7. Remove the hinge assembly (see [Hinge assembly on page 39](#)).

To remove the HDMI board:

1. Disconnect the top ribbon cable **(1)** from the board.
2. Disconnect the power cable **(2)** from the board.
3. Rotate the left side of the board up to remove it **(3)** from the dock.



Reverse this procedure to install the HDMI board.

Hard drive cable

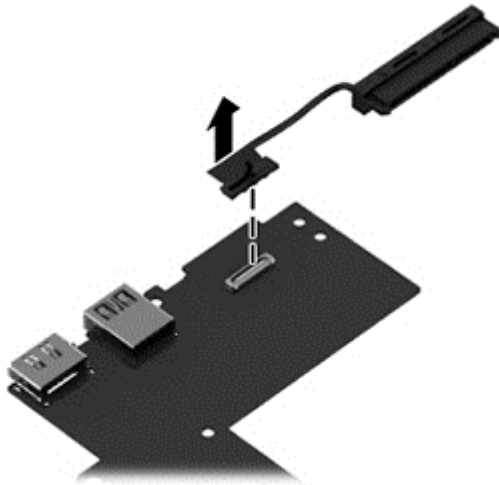
Description	Spare part number
Hard Drive Hardware Kit (includes cable, cover, and screws)	732279-001

Before removing the hard drive cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Remove the battery (see [Battery on page 40](#)).
7. Remove the hinge assembly (see [Hinge assembly on page 39](#)).

To remove the hard drive cable:

1. Position the HDMI board upside down.
2. Pull the hard drive cable straight up to disconnect it from the connector on the HDMI board.



Reverse this procedure to install the hard drive cable.

USB board

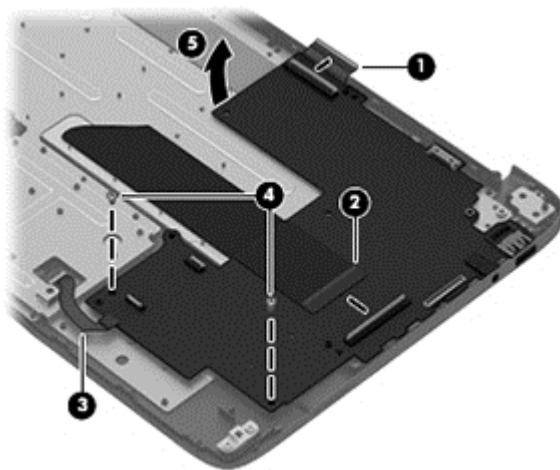
Description	Spare part number
USB board (includes cable)	732285-001

Before removing the USB board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Remove the battery (see [Battery on page 40](#)).
7. Remove the hinge assembly (see [Hinge assembly on page 39](#)).

Remove the USB board:

1. Disconnect the top ribbon cable (that routes to the HDMI board) from the board **(1)**.
2. Disconnect the keyboard cable **(2)**, and the smaller touchpad cable **(3)** from the board.
3. Remove the two Phillips PM2.0×5.0 screws **(4)** that secure the USB board to the dock.
4. Rotate the side of the board up and remove it from the dock **(5)**.



Reverse this procedure to install the USB board.

Touchpad board

Description	Spare part number
TouchPad board (includes cable)	732278-001

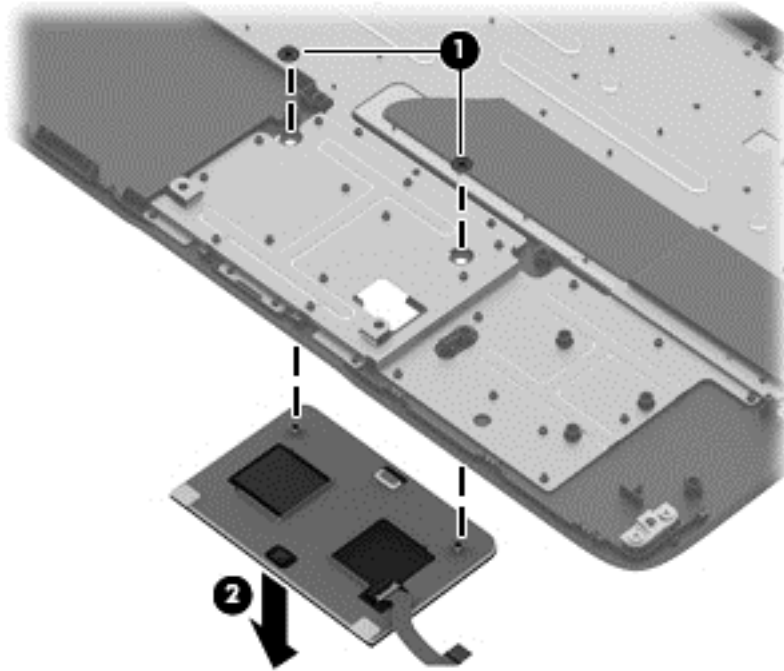
Before removing the TouchPad board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Remove the battery (see [Battery on page 40](#)).
7. Remove the hinge assembly (see [Hinge assembly on page 39](#)).

Remove the TouchPad board and cable:

1. Remove the two Phillips broadhead PM2.0×2.0 screws **(1)** that secure the touchpad board to the dock.

2. From the inside of the dock, push downward on the board to disengage it from the dock, and then remove it from the dock **(2)**.



Reverse this procedure to install the TouchPad board.

Power connector

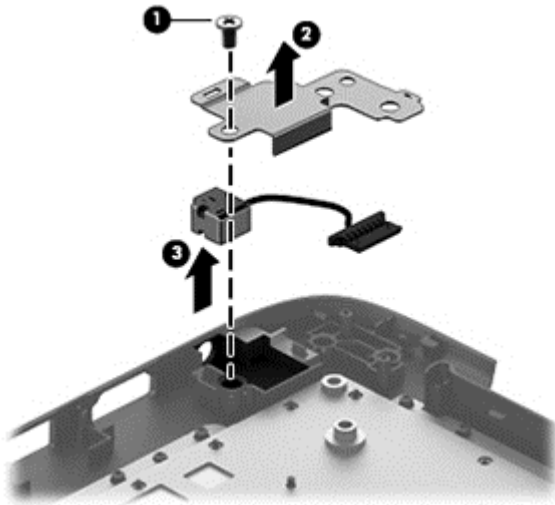
Description	Spare part number
Power connector	732288-001

Before removing the power connector, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Remove the battery (see [Battery on page 40](#)).
7. Remove the hinge assembly (see [Hinge assembly on page 39](#)).

Remove the power connector:

1. Remove the Phillips PM2.5×5.0 screw **(1)** that secures the power connector bracket to the dock.
2. Lift the bracket up and out of the dock **(2)**.
3. Remove the power connector **(3)** from the dock.



Reverse this procedure to install the power connector.

Weight

The weight is not spared.

Before removing the weight, follow these steps:

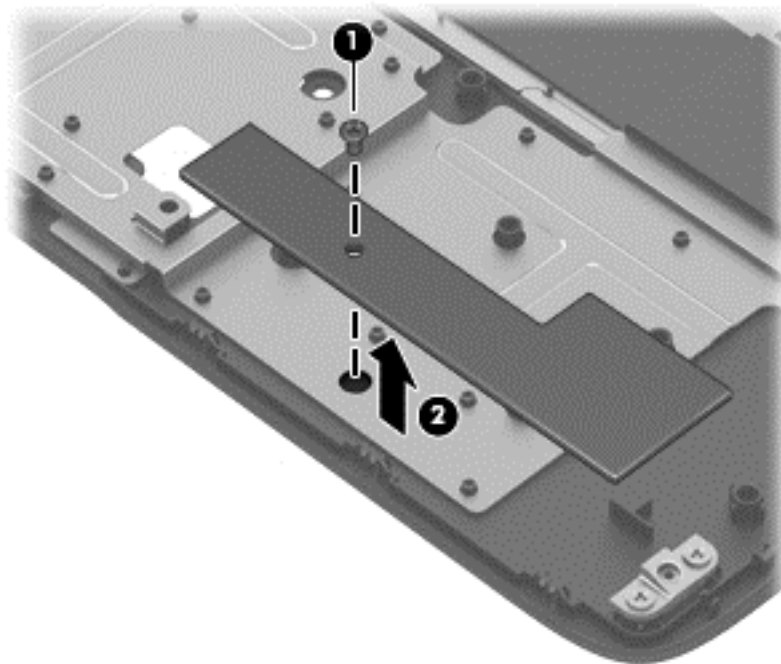
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the base enclosure (see [Base enclosure on page 35](#)).
6. Remove the battery (see [Battery on page 40](#)).

Remove the weight:

1. Remove the Phillips PM2.5×5.0 screw **(1)** that secures the weight to the dock.
2. Remove the weight from the dock **(2)**.



NOTE: The weight may also be secured to the dock with adhesive.



Reverse this procedure to install the weight.

Tablet components

The following sections show the removal and replacement procedures for the tablet parts.

Display rear cover

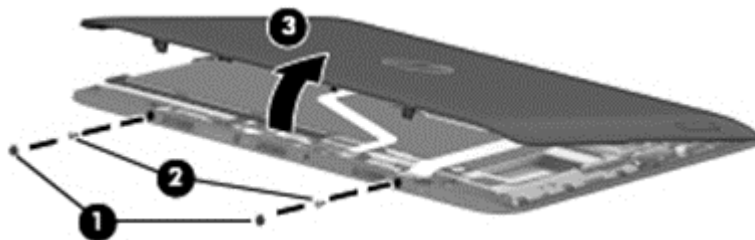
Description	Spare part number
Display rear cover for use in silver models	732269-001
Display rear cover for use in red models	733905-001

Before removing the display rear cover, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).

Remove the display rear cover:

1. Remove the two rubber screw covers **(1)** and two Phillips PM2.0×3.0 screws **(2)** that secure the cover to the tablet.
2. Using the slot in the cover, lift the cover off the tablet **(3)**



Reverse this procedure to install the display rear cover.

Battery cable

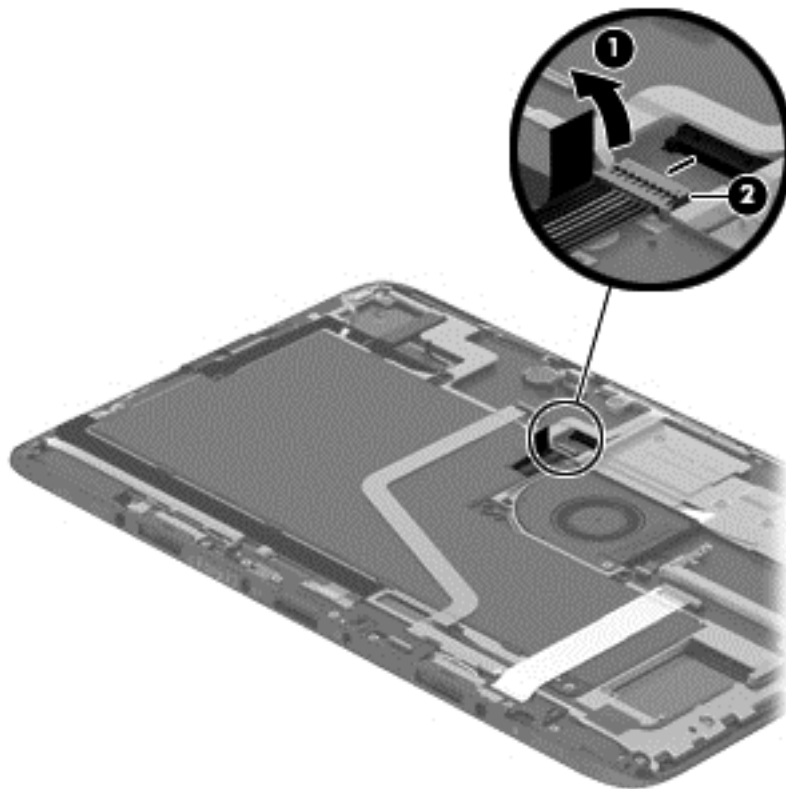
You do not have to remove the internal battery before removing several internal components. However, if you leave the battery installed while removing components, be sure to disconnect the battery cable from the system board to remove power from internal components.

Before disconnecting the battery cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).

Disconnect the battery cable:

- ▲ Lift the tape on top of the connector **(1)**, and then disconnect the battery cable from the system board connector **(2)**.



Memory module


Description	Spare part number
2-GB memory module (PC3L-12800, 1600-MHz, DDR3)	691739-005
4-GB memory module (PC3L-12800, 1600-MHz, DDR3)	691740-005
8-GB memory module (PC3L-12800, 1600-MHz, DDR3)	693374-005

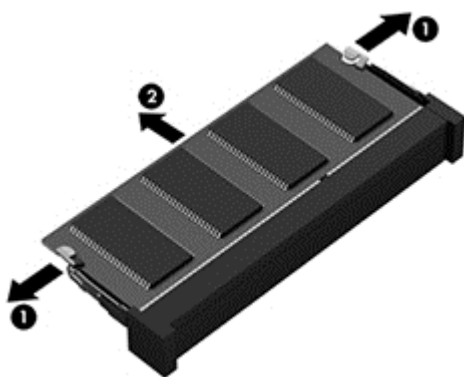
Before removing the memory module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the memory module:

1. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)
2. Remove the memory module **(2)** by pulling the module away from the slot at an angle.

 **NOTE:** Memory modules are designed with a notch to prevent incorrect insertion into the memory module slot.



Reverse this procedure to install a memory module.

Fan

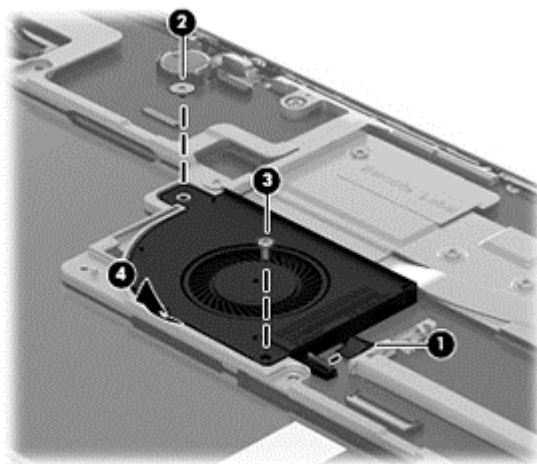
Description	Spare part number
Fan	732273-001

Before removing the fan, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the fan:

1. Disconnect the fan cable **(1)** from the system board.
2. Remove the Phillips broadhead PM2.0×2.0 screw **(2)** and the Phillips PM2.0×4.0 screw **(3)** that secure the fan to the tablet.
3. Lift outer edge of fan and pull it out from under the heat sink to remove it from the tablet **(4)**.



Reverse this procedure to install the fan.

Heat sink

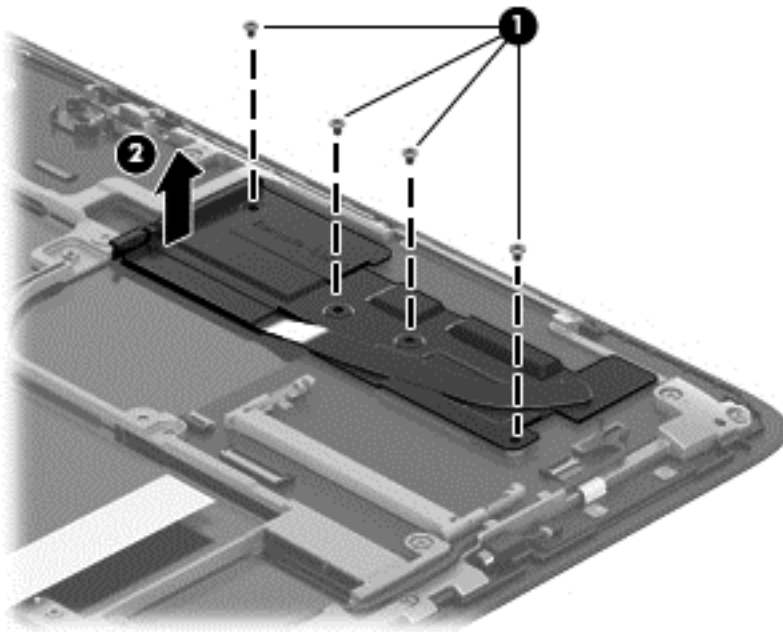
Description	Spare part number
Heat sink (includes thermal grease)	732274-001


Before removing the heat sink, follow these steps:

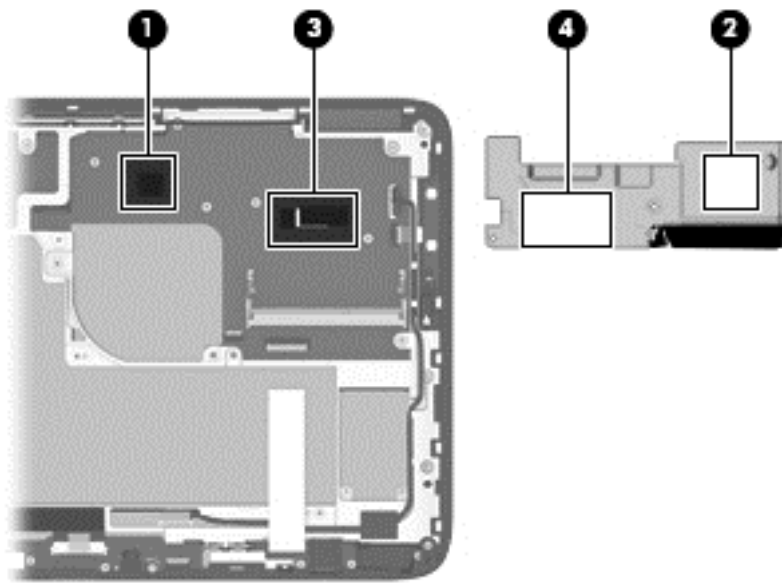
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the heat sink:

1. Remove the four Phillips PM2.0x4.0 screws **(1)** that secure the heat sink to the tablet.
2. Lift the heat sink straight up and off the tablet **(2)**.




 **NOTE:** Thoroughly clean thermal material from the surface of the processor and chipset **(1) (3)** and the related surfaces on the heat sink **(2) (4)** each time you remove the heat sink. All heat sink spare part kits include thermal material.



Reverse this procedure to install the heat sink.

WLAN/Bluetooth combo card

The computer uses a card that provides both WLAN and Bluetooth functionality.

 **CAUTION:** The WLAN module and the WWAN module are not interchangeable.

Description	Spare part number
Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter	690020-005
Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter	724935-005

Before removing the WLAN module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the WLAN module:


1. Position the computer upside-down.
2. Disconnect the WLAN antenna cables **(1)** from the terminals on the WLAN module.

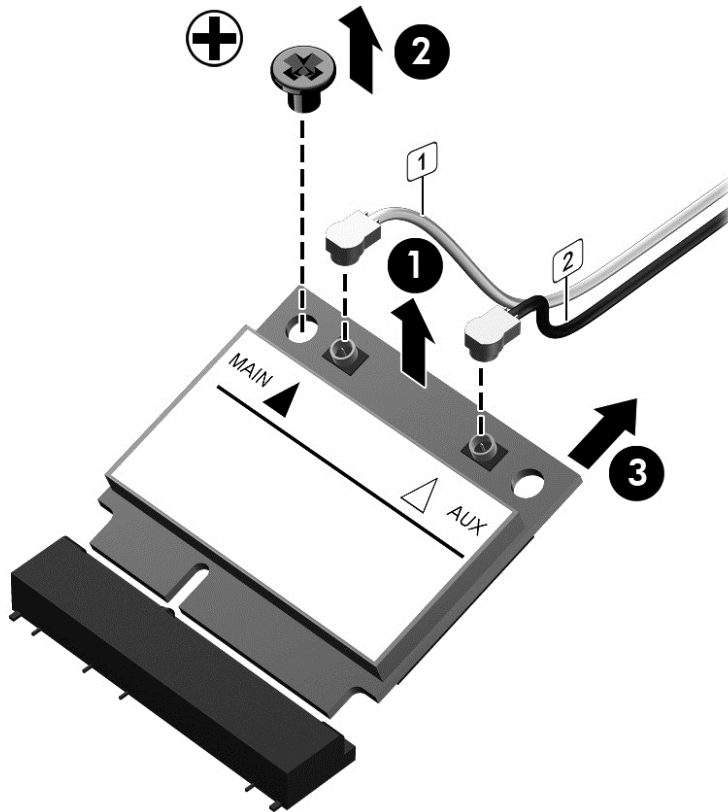



NOTE: The WLAN antenna cable labeled "1" connects to the WLAN module "Main" terminal labeled "1". The WLAN antenna cable labeled "2" connects to the WLAN module "Aux" terminal labeled "2". If the computer is equipped with an 802.11a/b/g/n WLAN module, the yellow WLAN antenna cable connects to the middle terminal on the WLAN module.

3. Remove the Phillips PM2.5x3.0 screw **(2)** that secures the WLAN module to the tablet. (The edge of the module opposite the slot rises away from the tablet.)

4. Remove the WLAN module **(3)** by pulling the module away from the slot at an angle.

 **NOTE:** WLAN modules are designed with a notch to prevent incorrect insertion.



 **NOTE:** If the WLAN antennas are not connected to the terminals on the WLAN module, the protective sleeves must be installed on the antenna connectors, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

mSATA Solid-State drive (SSD)

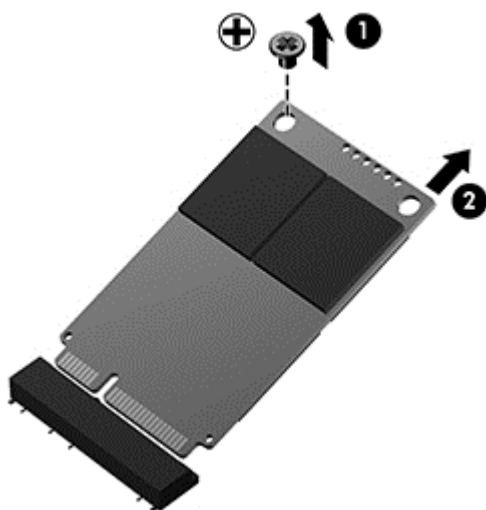
Description	Spare part number
64-GB mSATA SSD drive	732293-001
128-GB mSATA SSD drive	732294-001

Before removing the mSATA drive, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the mSATA drive:

1. Remove the Phillips PM2.5×3.0 screw **(1)** that secures the drive to the tablet.
2. Lift the drive to a 45-degree angle, and then pull it away to remove it from the socket **(2)**.



Reverse this procedure to install the mSATA drive.

RTC battery

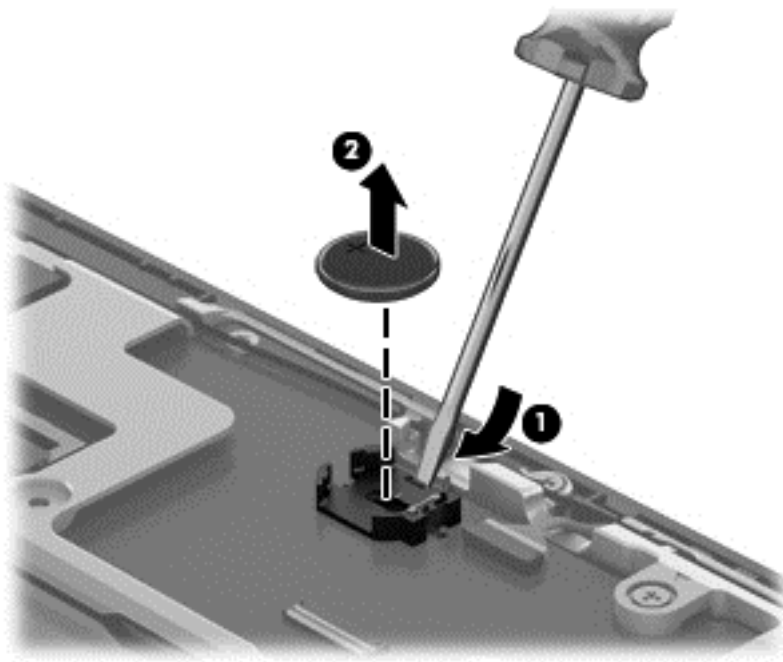
Description	Spare part number
RTC battery	739054-001

Before removing the RTC battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet, and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the RTC battery:

1. Use a screwdriver to loosen the battery from the socket **(1)**.
2. Lift the battery from the socket **(2)**.



Reverse this procedure to install the RTC battery.

Antennas

Description	Spare part number
Antennas (includes main and auxiliary antennas)	732268-001

Before removing the antennas, follow these steps:

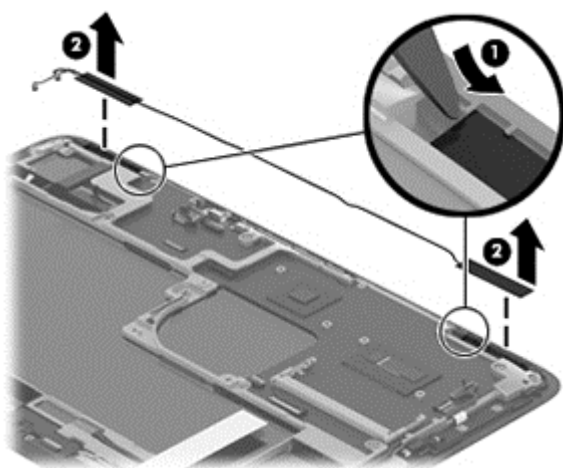
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the antennas:

1. Use a flat tool to pry the antennas up and loosen the adhesive that secures them to the tablet **(1)**.

CAUTION: To avoid damaging the antenna cables, do not pull on the cable to loosen them from the tablet.

2. Lift the antennas from the tablet **(2)**.



Reverse this procedure to install the antennas.

Display cable

Description	Spare part number
Display cable	732271-001

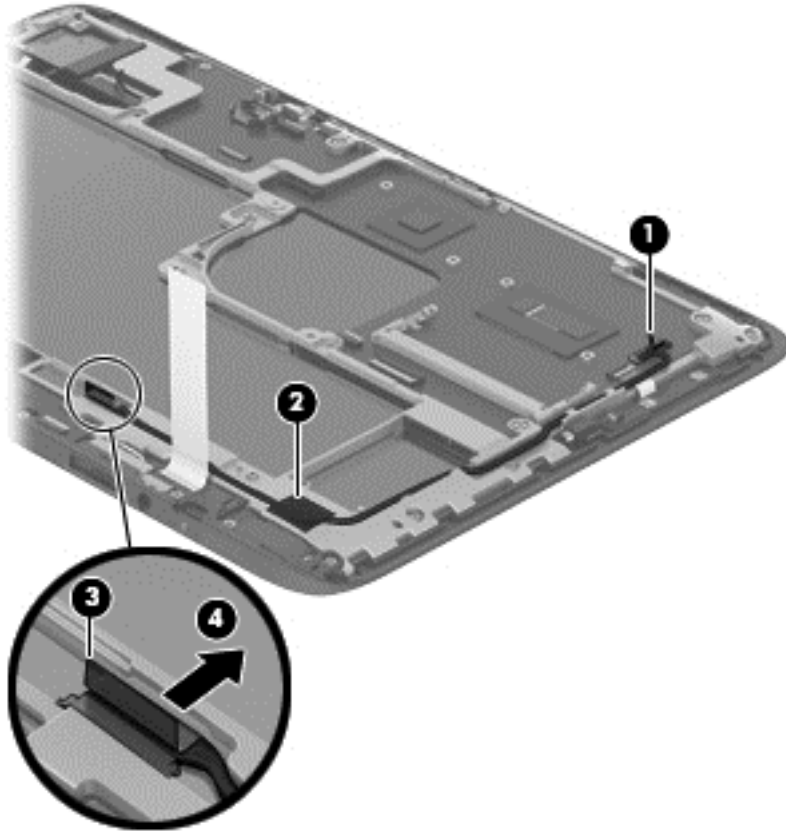
Before removing the display cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the display cable:

1. Disconnect the display cable **(1)** from the system board connector.
2. Lift the cable to disengage the adhesive that secures it in the routing path **(2)**.

3. Lifting the tape from bottom connector **(3)**, and then disconnect the cable from the audio board connector **(4)**.



Reverse this procedure to install the display cable.

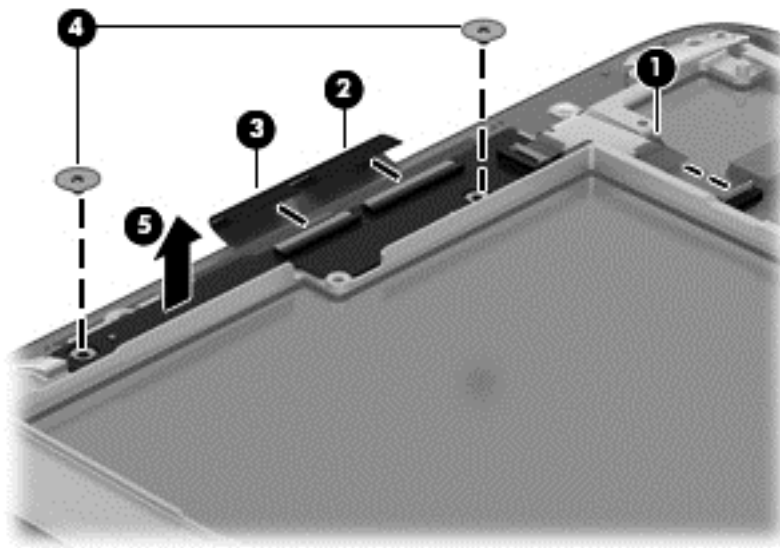
Touchscreen board

Before removing the touchscreen board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the touchscreen board:

1. Disconnect the cable from the side of the board **(1)**
2. Disconnect the two ZIF connectors **(2)(3)** from the middle of the touch board.
3. Remove the two Phillips broadhead PM2.0×2.0 screws **(4)** that secure the board to the tablet, and then remove the board **(5)** from the tablet.



Reverse this procedure to install the touchscreen board.

Volume board

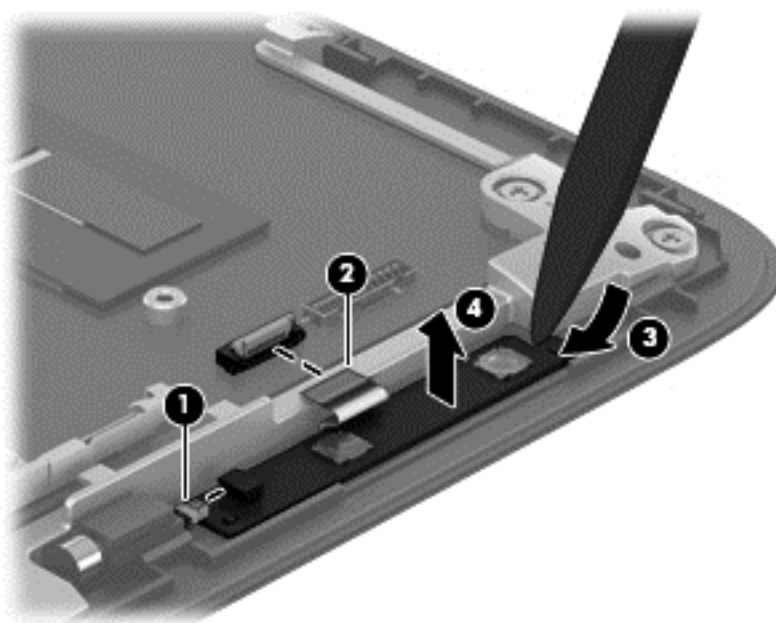
Description	Spare part number
Volume board (includes cable)	732282-001

Before removing the volume board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

To remove the volume board:

1. Disconnect the cable that connects to the side of the volume board **(1)**.
2. Disconnect the middle cable from the ZIF connector **(2)**.
3. Use a flat tool to pry the volume board up and loosen the adhesive that secures it to the tablet **(3)**, and then remove the volume board **(4)** from the tablet.



Reverse this procedure to install the volume board.

Power button board

Description	Spare part number
Power button board (includes cable)	732281-001

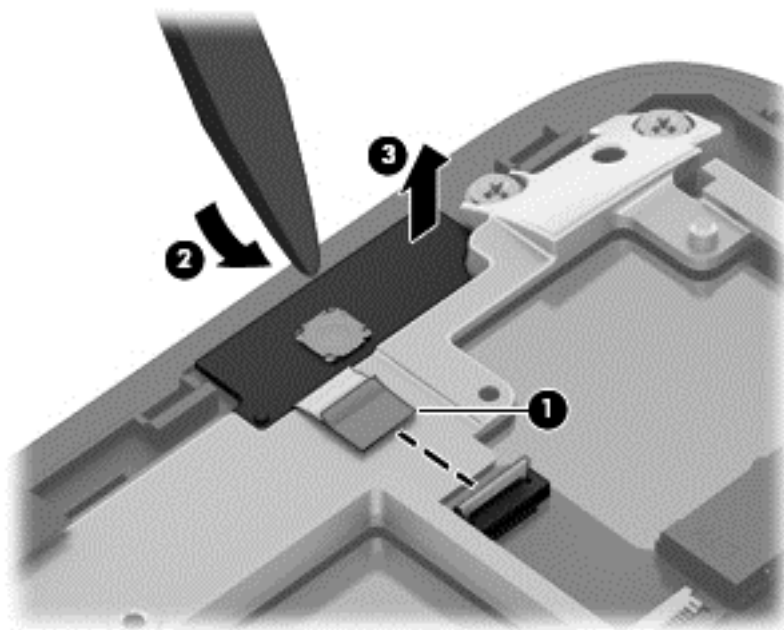
Before removing the power button board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).
7. Remove the following components:
 - Display rear cover (see [Display rear cover on page 49](#))

Remove the power button board:

1. Disconnect the power button board cable **(1)** from the system board.
2. Use a flat tool to pry the board up and loosen the adhesive that secures it to the tablet **(2)**.

3. Remove the power button board (3) from the tablet.



Reverse this procedure to install the power button board.

Bottom trim

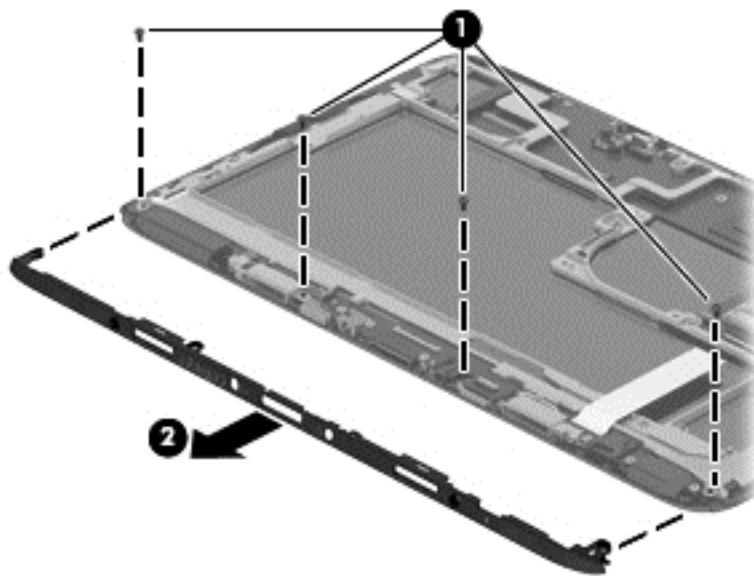
Description	Spare part number
Bottom trim for use in models that use the following wireless module: Ralink RT3290LE 802.11bgn 1x1 Wi-Fi and Bluetooth 4.0 Combo Adapter (690020-005)	
APJ region	732275-001
EMEA region	732276-001
North American and Latin American regions	732277-001
Taiwan and South Korea	735215-001
Bottom trim for use in models that use the following wireless module: Broadcom BCM4352 802.11ac 2x2 Wi-Fi + BT 4.0 Combo Adapter (724935-005)	
APJ region	735216-001
EMEA region	735217-001
North American and Latin American regions	735218-001
Taiwan and South Korea	735219-001

Before removing the bottom trim, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).

Remove the bottom trim:

1. Remove the four Phillips PM2.0×4.0 screws **(1)** that secure the trim to the tablet.
2. Pull the trim away from the tablet **(2)**



Reverse this procedure to install the bottom trim.

Home LED board

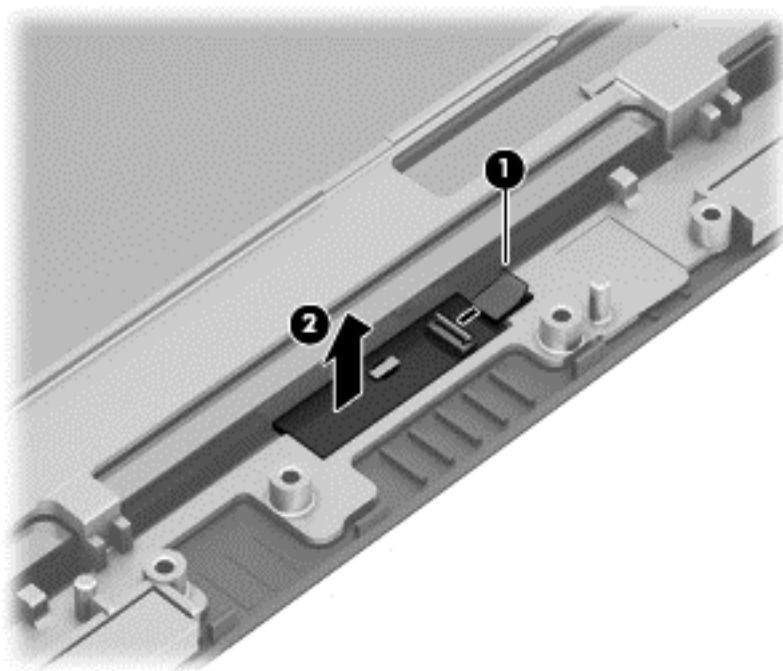
Description	Spare part number
Home LED board	737898-001

Before removing the home LED board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).
7. Remove the bottom trim (see [Bottom trim on page 65](#)).

To remove the home LED board:

1. Disconnect the cable from the connector on the board **(1)**.
2. Lift up to disengage the adhesive that secures the board from the tablet **(2)** and remove the board.



Reverse this procedure to install the home LED board.

Audio board

Description	Spare part number
Audio board (includes audio cable and HDMI/dock cable)	732284-001

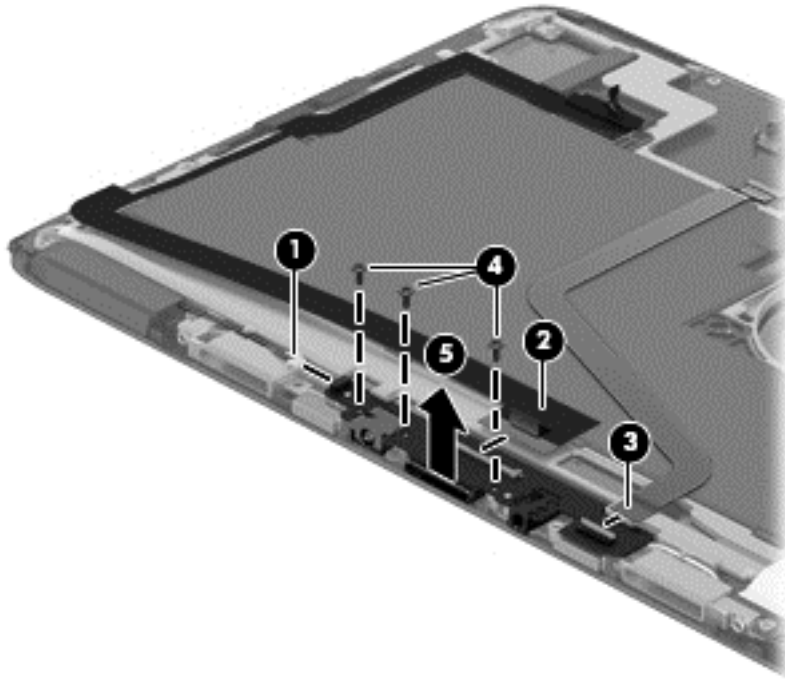
Before removing the audio board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).
7. Remove the bottom trim (see [Bottom trim on page 65](#)).

To remove the audio board:


1. Disconnect the audio cable from the side of the audio board **(1)**.
2. Disconnect the display cable from the audio board **(2)**.
3. Disconnect the docking cable from the audio board **(3)**.
4. Remove the three Phillips PM2.0×3.0 screws **(4)** that secure the audio board to the tablet.

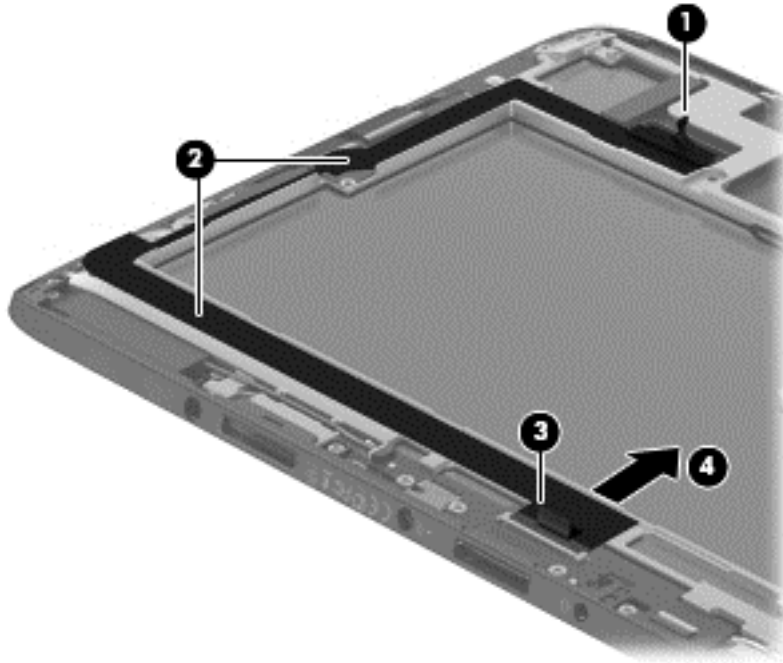
5. Lift the audio board from the tablet **(5)**.



6. If you need to remove the HDMI/dock connector, disconnect the HDMI/dock cable **(1)** from the system board connector.
7. Lift the cable to disengage the adhesive that secures it in the routing path **(2)**.

8. Lifting the tape from bottom connector **(3)**, and then disconnect the HDMI/dock cable from the connector on the audio board **(4)**.

 **NOTE:** The HDMI/dock cable is included in the audio board kit, spare part number 732284-001.



Reverse this procedure to install the audio board.

Card reader

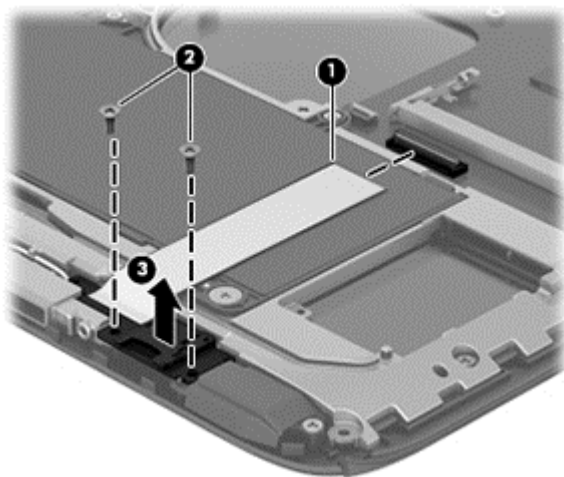
Description	Spare part number
Card reader (includes cable)	732283-001

Before removing the card reader, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).
7. Remove the bottom trim (see [Bottom trim on page 65](#)).
8. Remove the audio board (see [Audio board on page 68](#)).

Remove the card reader:

1. Disconnect the card reader cable **(1)** from the system board.
2. Remove the two Phillips PM2.0×4.0 screws **(2)** that secure the card reader to the tablet.
3. Lift the card reader from the tablet **(3)**.



Reverse these procedures to install the card reader.

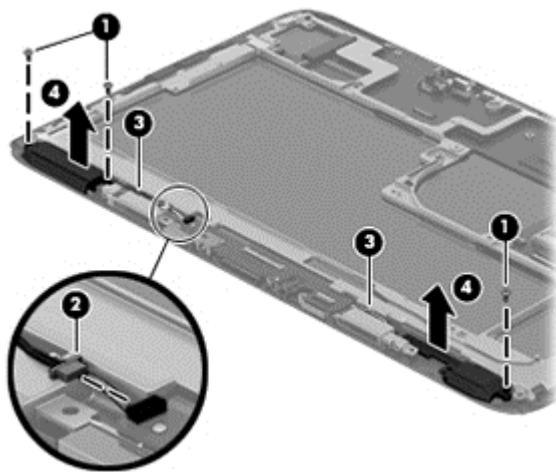
Speakers

Description	Spare part number
Speaker Kit (includes left and right speakers)	732292-001

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the display rear cover (see [Display rear cover on page 49](#)).
6. Disconnect the battery cable (see [Battery cable on page 50](#)).
7. Remove the bottom trim (see [Bottom trim on page 65](#)).
8. Remove the card reader board (see [Card reader on page 71](#)).

Remove the speakers:

1. Remove the three Phillips PM2.0×3.0 screws **(1)** that secure the speakers to the tablet.
2. Disconnect the speaker cable from the audio board **(2)**.
3. Release the speaker cable from the clips built into the tablet **(3)**.
4. Remove the speakers from the tablet **(4)**.



Reverse these procedures to install the speakers.

Battery

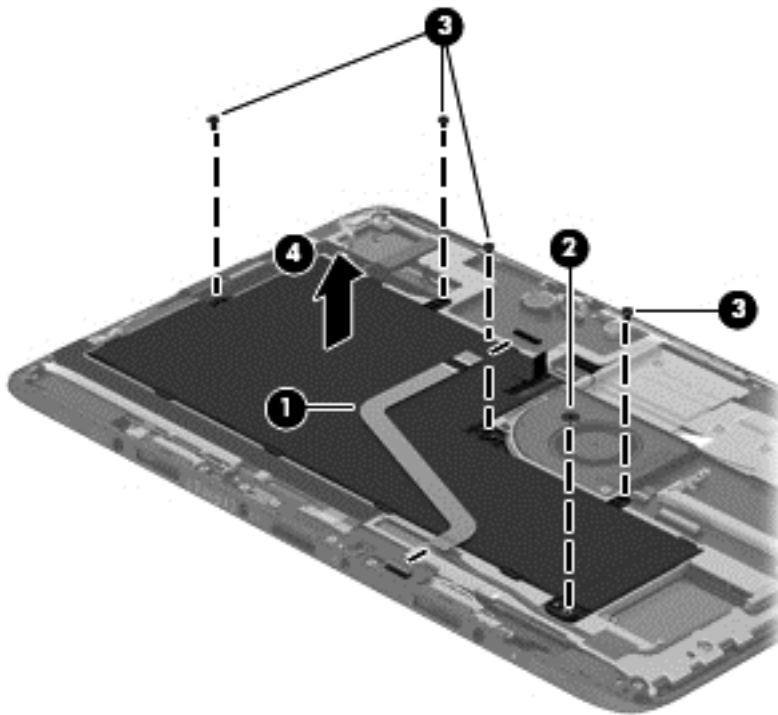
Description	Spare part number
3-cell, 33-WHr, 3.05-AH battery	725606-001

The tablet includes an internal battery.

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
 2. Disconnect all external devices connected to the computer.
 3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
 4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
 5. Remove the display rear cover (see [Display rear cover on page 49](#)).
 6. Disconnect the battery cable (see [Battery cable on page 50](#)).
1. Disconnect the HT cable **(1)**.
 2. Remove the Phillips broadhead PM2.0×3.0 screw **(2)** and the four Phillips PM2.0×5.0 screws **(3)** that secure the battery to the tablet.

3. Remove the battery **(4)** from the tablet.



Reverse this procedure to install the battery.

Frame

The frame is not spared.

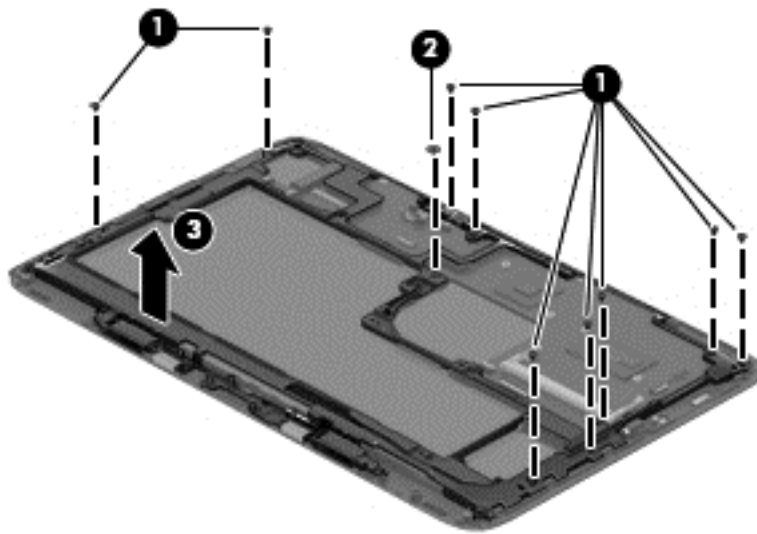
Before removing the frame, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the following components:
 - Display rear cover (see [Display rear cover on page 49](#))
 - WLAN module (see [WLAN/Bluetooth combo card on page 55](#))
 - Display cable (see [Display cable on page 60](#))
 - Touchscreen board cable (see [Touchscreen board on page 62](#))
 - Volume board cable (see [Volume board on page 63](#))
 - Bottom trim (see [Bottom trim on page 65](#))
 - Audio board (see [Audio board on page 68](#))
 - Card reader cable (see [Card reader on page 71](#))
 - Speakers (see [Speakers on page 72](#))
 - Battery (see [Battery on page 73](#))

Remove the frame:

1. Remove the nine Phillips PM2.0×3.0 screws **(1)** that secure the frame to the tablet.
2. Remove the Phillips broadhead PM2.0×2.0 screw **(2)** that secures the frame to the tablet.

3. Lift the frame off the tablet **(3)**.



Reverse this procedure to install the frame.

Webcam

Description	Spare part numbers
Webcam (includes cable)	732299-001

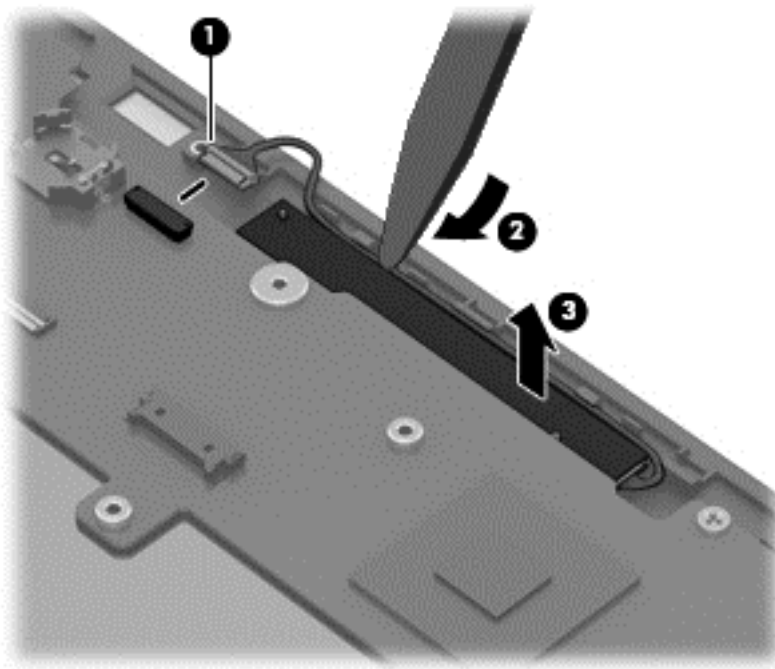
Before removing the webcam:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the following components:
 - Display rear cover (see [Display rear cover on page 49](#))
 - WLAN module (see [WLAN/Bluetooth combo card on page 55](#))
 - Display cable (see [Display cable on page 60](#))
 - Touchscreen board cable (see [Touchscreen board on page 62](#))
 - Volume board cable (see [Volume board on page 63](#))

- Bottom trim (see [Bottom trim on page 65](#))
- Audio board (see [Audio board on page 68](#))
- Card reader cable (see [Card reader on page 71](#))
- Speakers (see [Speakers on page 72](#))
- Battery (see [Battery on page 73](#))
- Frame (see [Frame on page 75](#))

Remove the front webcam:

- 1.** Disconnect the webcam cable from the system board **(1)**.
- 2.** Use a flat tool to pry the webcam up and loosen the adhesive that secures it to the tablet **(2)**.
- 3.** Remove the webcam from the tablet **(3)**.



System board



NOTE: The system board spare part kits include replacement thermal material.

Description	Spare part number
System board for use with non-Windows 8 models with an Intel Core i5-3339Y processor (includes processor and replacement thermal material)	732295-001
System board for use with Windows 8 Standard models with an Intel Core i5-3339Y processor (includes processor and replacement thermal material)	732295-501
System board for use with non-Windows 8 models with an Intel Core i3-3229Y processor (includes processor and replacement thermal material)	732296-001
System board for use with Windows 8 Standard models with an Intel Core i3-3229Y processor (includes processor and replacement thermal material)	732296-501

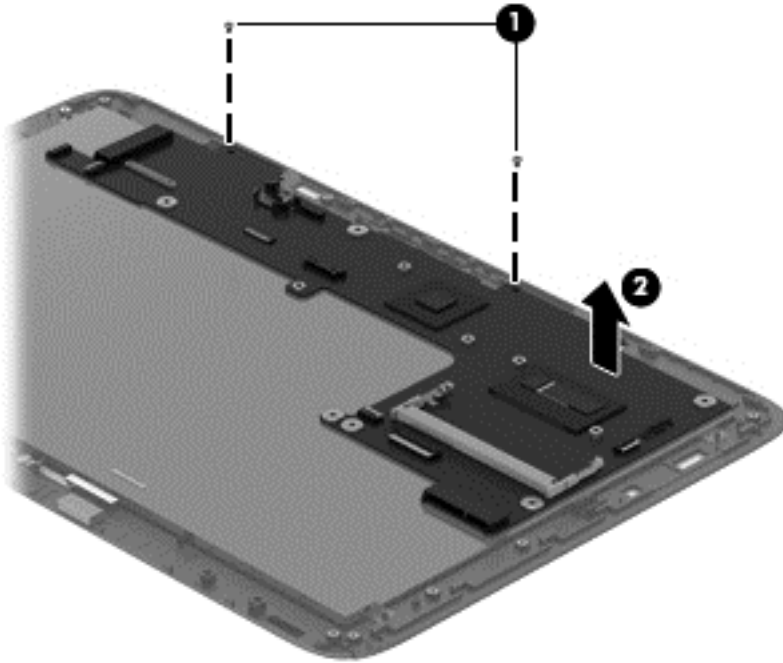
Before removing the system board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the following components:
 - Display rear cover (see [Display rear cover on page 49](#))
 - Fan (see [Fan on page 52](#))
 - Heat sink (see [Heat sink on page 53](#))
 - WLAN module (see [WLAN/Bluetooth combo card on page 55](#))
 - Display cable (see [Display cable on page 60](#))
 - Touchscreen board cable (see [Touchscreen board on page 62](#))
 - Volume board cable (see [Volume board on page 63](#))
 - Bottom trim (see [Bottom trim on page 65](#))
 - Audio board (see [Audio board on page 68](#))
 - Card reader cable (see [Card reader on page 71](#))
 - Speakers (see [Speakers on page 72](#))

- Battery (see [Battery on page 73](#))
- Frame (see [Frame on page 75](#))

Remove the system board:

1. Remove the two Phillips PM 2.0x3.0 screws **(1)** that secure the system board to the tablet.
2. Lift the system board **(2)** off the tablet.



Reverse this procedure to install the system board.

Vibration module

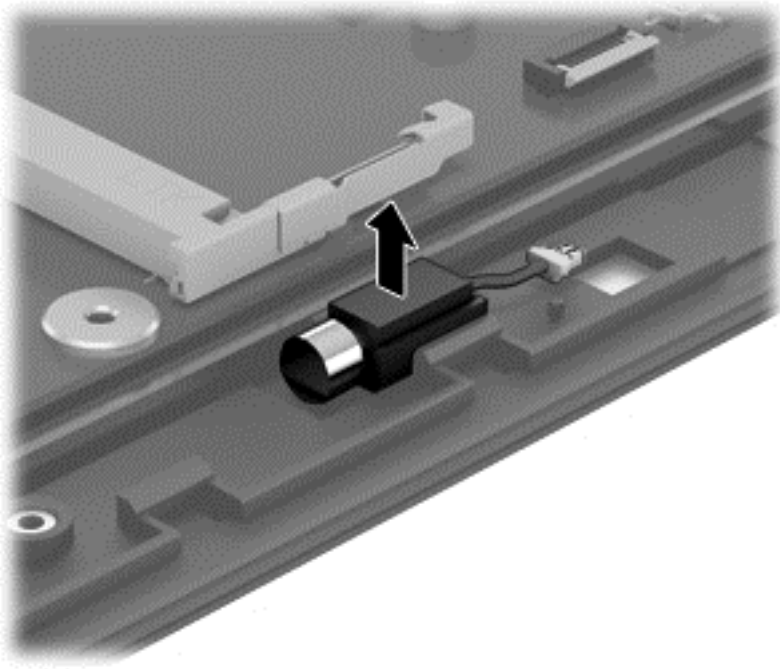
Description	Spare part number
Vibration module	732272-001

Before removing the vibrating motor, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Disconnect the tablet from the keyboard dock (see [Releasing the tablet from the keyboard dock on page 34](#)).
5. Remove the following components:
 - Display rear cover (see [Display rear cover on page 49](#))
 - Fan (see [Fan on page 52](#))
 - Heat sink (see [Heat sink on page 53](#))
 - WLAN module (see [WLAN/Bluetooth combo card on page 55](#))
 - Display cable (see [Display cable on page 60](#))
 - Touchscreen board cable (see [Touchscreen board on page 62](#))
 - Volume board cable (see [Volume board on page 63](#))
 - Bottom trim (see [Bottom trim on page 65](#))
 - Audio board (see [Audio board on page 68](#))
 - Card reader cable (see [Card reader on page 71](#))
 - Speakers (see [Speakers on page 72](#))
 - Battery (see [Battery on page 73](#))
 - Frame (see [Frame on page 75](#))

Remove the vibration module from the display:

- ▲ Locate the vibration module on the side of the tablet, and then remove the vibrating motor .



To install the vibration module, reverse the removal procedures.

6 Using Setup Utility (BIOS) and System Diagnostics

Setup Utility, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Setup Utility (BIOS) includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

Starting Setup Utility (BIOS)

To start Setup Utility (BIOS), turn on or restart the computer, quickly press **esc**, and then press **f10**.

Information about how to navigate in Setup Utility (BIOS) is located at the bottom of the screen.



NOTE: Use extreme care when making changes in Setup Utility (BIOS). Errors can prevent the computer from operating properly.

Updating the BIOS

Updated versions of the BIOS may be available on the HP website.

Most BIOS updates on the HP website are packaged in compressed files called *SoftPaqs*.

Some download packages contain a file named *Readme.txt*, which contains information regarding installing and troubleshooting the file.

Determining the BIOS version


To determine whether available BIOS updates contain later BIOS versions than those currently installed on the computer, you need to know the version of the system BIOS currently installed.

BIOS version information (also known as *ROM date* and *System BIOS*) can be displayed by pressing **fn + esc** (if you are already in Windows) or by using Setup Utility (BIOS).

1. Start Setup Utility (BIOS) see [Starting Setup Utility \(BIOS\) on page 82](#).
2. Use the arrow keys to select **Main**.

3. To exit Setup Utility (BIOS) without saving your changes, use the arrow keys to select **Exit**, select **Exit Discarding Changes**, and then press **enter**.
4. Click **Yes**.

Downloading a BIOS update

 **CAUTION:** To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power or connected to an optional power source. During the download and installation, follow these instructions:


Do not disconnect power from the computer by unplugging the power cord from the AC outlet.

Do not shut down the computer or initiate Sleep.

Do not insert, remove, connect, or disconnect any device, cable, or cord.

1. From the Start screen, type `support`, and then select the **HP Support Assistant** app.
2. Click **Updates and tune-ups**, and then click **Check for HP updates now**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
 - b. Follow the on-screen instructions to download your selection to the hard drive.

If the update is more recent than your BIOS, make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

 **NOTE:** If you connect your computer to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

BIOS installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete. If no instructions are displayed, follow these steps:

1. From the Start screen, type `e`, and then select **File Explorer**.
2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.
4. Double-click the file that has an `.exe` extension (for example, `filename.exe`).

The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.



NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

To start HP PC Hardware Diagnostics UEFI:

1. Turn on or restart the computer, quickly press **esc**, and then press **f2**.

The BIOS searches three places for the HP PC Hardware Diagnostics (UEFI) tools in the following order:

- a. Connected USB drive



NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 84](#).

- b. Hard drive
- c. BIOS

2. Click the type of diagnostic test you want to run, and then follow the on-screen instructions.



NOTE: If you need to stop a diagnostic test, press **esc**.

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device



NOTE: The HP PC Hardware Diagnostics (UEFI) download instructions are provided in English only.

1. Go to <http://www.hp.com>.
2. Click **Support & Drivers**, and then click the **Drivers & Software** tab.
3. Enter the product name in the text box, and then click **Search**.
4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

– or –

Click **Download**, and then select **Run**.

7 Specifications

Computer specifications

	Metric	U.S.
Dimensions: tablet		
Width	34.0 cm	13.4 in
Depth	21.6 cm	8.5 in
Height	1.13 cm	0.45 in
Dimensions: base		
Width	33.9 cm	13.4 in
Depth	21.7 cm	8.5 in
Height	1.16 cm	0.46 in
Weight: tablet		
With hard drive	< 1.0 kg	< 2.2 lb
Without hard drive	< 1.0 kg	< 2.2 lb
Weight: base		
With hard drive	< 1.2 kg	< 2.7 lb
Without hard drive	< 1.3 kg	< 2.9 lb
Input power		
Operating voltage and current	18.5 V dc @ 3.5 A - 65 W	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		

	Metric	U.S.
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.

33.8-cm (13.3-in), HD display specifications

	Metric	U.S.
Dimensions		
Height	17.91 cm	7.05 in
Width	28.65 cm	11.28 in
Diagonal	33.8-cm	13.3-in
Number of colors	262,144	
Contrast ratio	200:1 (typical)	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	0.197 mm × 0.197 mm	
Format	1366 × 768	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80 × 25	
Total power consumption	2.0 W	
Viewing angle	±60° horizontal, ±30° vertical (typical)	

8 Backing up, restoring, and recovering

Your computer includes tools provided by HP and Windows to help you safeguard your information and retrieve it if you ever need to. These tools will help you return your computer to a proper working state or even back to the original factory state, all with simple steps.

This chapter provides information about the following processes:

- Creating recovery media and backups
- Restoring and recovering your system



NOTE: This guide describes an overview of backing up, restoring and recovering options. For more details about the tools provided, see Help and Support. From the Start screen, type **h**, and then select **Help and Support**.

Creating recovery media and backups

Recovery after a system failure is only as good as your most recent backup.

1. After you successfully set up the computer, create HP Recovery media. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced.

HP Recovery media you create will provide the following recovery options:

- **System Recovery**—Reinstalls the original operating system and the programs that were installed at the factory.
- **Minimized Image Recovery**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

See [Creating HP Recovery media on page 88](#).

2. As you add hardware and software programs, create system restore points. A system restore point is a snapshot of certain hard drive contents saved by Windows System Restore at a specific time. A system restore point contains information that Windows uses, such as registry settings. Windows creates a system restore point for you automatically during a Windows update and during other system maintenance (such as a software update, security scanning, or system diagnostics). You can also manually create a system restore point at any time. For more information and steps for creating specific system restore points, see Help and Support. From the Start screen, type **h**, and then select **Help and Support**.
3. As you add photos, video, music, and other personal files, create a backup of your personal information. Windows File History can be set to regularly and automatically back up files from libraries, desktop, contacts, and favorites. If files are accidentally deleted from the hard drive and they can no longer be restored from the Recycle Bin, or if files become corrupted, you can restore the files that you backed up using File History. Restoring files is also useful if you ever choose to reset the computer by reinstalling Windows or choose to recover using HP Recovery Manager.



NOTE: File History is not enabled by default, so you must turn it on.

For more information and steps for enabling Windows File History, see Help and Support. From the Start screen, type **h**, and then select **Help and Support**.

Creating HP Recovery media

HP Recovery Manager is a software program that offers a way to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and the software programs installed at the factory, and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace a hard drive.

- Only one set of HP Recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
- HP Recovery Manager examines the computer and determines the required storage capacity for the blank USB flash drive or the number of blank DVD discs that will be required.
- To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or instead you can use a high-quality blank USB flash drive.
- If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs, or you can obtain recovery discs for your computer from the HP website. For U.S. support, go to <http://www.hp.com/go/contactHP>. For worldwide support, go to http://welcome.hp.com/country/us/en/wwwcontact_us.html. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub.

- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take up to an hour or more. Do not interrupt the creation process.
- If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue, and the remaining discs will be burned.

To create HP Recovery media:

1. Connect the tablet to the keyboard dock.
2. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
3. Select **Recovery Media Creation**, and then follow the on-screen instructions.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 92](#).

Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:

- If you need to restore your personal files and data, you can use Windows File History to restore your information from the backups you created. For more information and steps for using File History, see Help and Support. From the Start screen, type `h`, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Drivers and Applications Reinstall option of HP Recovery Manager to reinstall the individual application or driver.

From the Start screen, type `recovery`, select **HP Recovery Manager**, select **Drivers and Applications Reinstall**, and then follow the on-screen instructions.

- If you want to restore the system to a previous state without losing any personal information, Windows System Restore is an option. System Restore allows you to restore without the requirements of Windows Refresh or a reinstallation. Windows creates system restore points automatically during a Windows update and other system maintenance events. Even if you did not manually create a restore point, you can choose to restore to an automatically created restore point. For more information and steps for using Windows System Restore, see Help and Support. From the Start screen, type `h`, and then select **Help and Support**.
- If you want a quick and easy way to recover the system without losing your personal information, settings, or apps that came preinstalled on your computer or were purchased from the Windows Store, consider using Windows Refresh. This option does not require backing up data to another drive. See [Using Windows Refresh for quick and easy recovery on page 90](#).
- If you want to reset your computer to its original state, Windows provides an easy way to remove all personal data, apps, and settings, and reinstall Windows.

For more information, see [Remove everything and reinstall Windows on page 91](#).

- If you want to reset your computer using a minimized image, you can choose the HP Minimized Image Recovery option from the HP Recovery partition (select models only) or HP Recovery media. Minimized Image Recovery installs only drivers and hardware-enabling applications. Other applications included in the image continue to be available for installation through the Drivers and Applications Reinstall option in HP Recovery Manager.

For more information, see [Recovering using HP Recovery Manager on page 92](#).

- If you want to recover the computer's original factory partitioning and content, you can choose the System Recovery option from the HP Recovery partition or the HP Recovery media that you have created. For more information, see [Recovering using HP Recovery Manager on page 92](#).
- If you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media to restore the factory image to the replacement drive. For more information, see [Recovering using HP Recovery Manager on page 92](#).
- If you wish to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see [Removing the HP Recovery partition on page 94](#).

Using Windows Refresh for quick and easy recovery

When your computer is not working properly and you need to regain system stability, the Windows Refresh option allows you to start fresh and keep what is important to you.



IMPORTANT: Refresh removes any traditional applications that were not originally installed on the system at the factory. Any Windows 8 apps that came preinstalled on your computer or were purchased from the Windows Store will be saved.



NOTE: During Refresh, a list of removed traditional applications will be saved so that you have a quick way to see what you might need to reinstall. See Help and Support for instructions on reinstalling traditional applications. From the Start screen, type **h**, and then select **Help and Support**.



NOTE: You may be prompted for your permission or password when using Refresh. See Help and Support for more information. From the Start screen, type **h**, and then select **Help and Support**.

To start Refresh:

1. Connect the tablet to the keyboard dock.
2. From the Start screen, point to the upper-right or lower-right corner of the screen to reveal the charms.
3. Click **Settings**.
4. Click **Change PC settings** in the bottom-right corner of the screen, and then select **General** from the PC settings screen.
5. Scroll the right-side choices down to display **Refresh your PC without affecting your files**.
6. Under **Refresh your PC without affecting your files**, select **Get started**, and then follow the on-screen instructions.

Remove everything and reinstall Windows

Sometimes you want to perform detailed reformatting of your computer, or you want to remove personal information before you give away or recycle your computer. The process described in this section provides a speedy, simple way to return the computer to its original state. This option removes all personal data, apps, and settings from your computer, and reinstalls Windows.



IMPORTANT: This option does not provide backups of your information. Before using this option, back up any personal information you wish to retain.

You can initiate this option by using the **F11** key or from the Start screen.

To use the **F11** key:

1. Connect the tablet to the keyboard dock.
2. Press **F11** while the computer boots.
– or –
Press and hold **F11** as you press the power button.
3. Select **Troubleshoot** from the boot options menu.
4. Select **Reset your PC**, and then follow the on-screen instructions.

To use the Start screen:

1. Connect the tablet to the keyboard dock.
2. From the Start screen, point to the upper-right or lower-right corner of the screen to reveal the charms.
3. Click **Settings**.
4. Click **Change PC settings** in the bottom-right corner of the screen, and then select **General** from the PC settings screen.
5. Scroll the right-side choices down to display **Remove everything and reinstall Windows**.
6. Under **Remove everything and reinstall Windows**, select **Get started**, and follow the on-screen instructions.

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media you created or by using the HP Recovery partition. You can choose from one of the following recovery options:

- **System Recovery**—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- **Minimized Image Recovery**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition allows Minimized Image Recovery and System Recovery.

What you need to know

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.
- Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.
- HP Recovery media must be used if the computer hard drive fails. If you have not already created recovery media, see [Creating HP Recovery media on page 88](#).
- To use the Factory Reset option, you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media on page 88](#).
- If the HP Recovery media do not work, you can obtain recovery media for your system from the HP website. For U.S. support, go to <http://www.hp.com/go/contactHP>. For worldwide support, go to http://welcome.hp.com/country/us/en/wwcontact_us.html.



IMPORTANT: HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you wish to retain.

Using the HP Recovery partition

The HP Recovery partition (select models only) allows you to perform a minimized image recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can only be used if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:

1. Connect the tablet to the keyboard dock.
2. Press **f11** while the computer boots.
– or –
Press and hold **f11** as you press the power button.
3. Select **Troubleshoot** from the boot options menu.
4. Select **HP Recovery Manager**, and follow the on-screen instructions.

Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.
2. Insert the first HP Recovery disc you created into the optical drive on your computer or into an optional external optical drive, and then restart the computer.

– or –

Insert the HP Recovery USB flash drive you created into a USB port on your computer, and then restart the computer.



NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 93](#).

3. Follow the on-screen instructions.

Changing the computer boot order

If computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection for an optical drive or a USB flash drive.

To change the boot order:

1. Insert the HP Recovery media you created.
2. Restart the computer.
3. Press and hold **esc** while the computer is restarting, and then press **f9** for boot options.
4. Select the optical drive or USB flash drive you want to boot from.
5. Follow the on-screen instructions.

Removing the HP Recovery partition

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.



IMPORTANT: After you remove the HP Recovery partition, you can no longer use the Windows Refresh option, the Windows option to remove everything and reinstall Windows, or the HP Recovery Manager option. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media on page 88](#).

Follow these steps to remove the HP Recovery partition:

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

9 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least **1.0 m** (3.3 ft) and no more than **2.0 m** (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 A and a nominal voltage rating of 125 or 250 V ac, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Argentina	IRAM	1
Australia	SAA	1
Austria	OVE	1
Belgium	CEBEC	1
Brazil	ABNT	1
Canada	CSA	2
Chile	IMQ	1
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
India	ISI	1
Israel	SII	1
Italy	IMQ	1
Japan	JIS	3
The Netherlands	KEMA	1
New Zealand	SANZ	1
Norway	NEMKO	1
The People's Republic of China	CCC	4
Saudi Arabia	SASO	7
Singapore	PSB	1
South Africa	SABS	1
South Korea	KTL	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	6
Thailand	TISI	1
The United Kingdom	ASTA	1

Country/region	Accredited agency	Applicable note number
The United States	UL	2
<ol style="list-style-type: none"> 1. The flexible cord must be Type HO5VV-F, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used. 2. The flexible cord must be Type SVT/SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V ac) configuration. CSA or C-UL mark. UL file number must be on each element. 3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² or 1.25-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V ac) configuration. 4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the CCC certification mark. 5. The flexible cord must be Type HO5VV-F 3X0.75-mm² conductor size. KTL logo and individual approval number must be on each element. Corset approval number and logo must be printed on a flag label. 6. The flexible cord must be Type HVCTF 3x1.25-mm² conductor size. Power cord set fittings (appliance coupler, cable, and wall plug) must bear the BSMI certification mark. 7. For 127 V ac, the flexible cord must be Type SVT or SJT 3 x 18 AWG, with plug NEMA 5-15P (15 A, 125 V ac), with UL and CSA or C-UL marks. For 240 V ac, the flexible cord must be Type HO5VV-F 3x0.75-/1.00-mm² conductor size, with plug BS 1363/A with BSI or ASTA marks. 		

10 Recycling

When a non-rechargeable or rechargeable battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, see the HP Web site at <http://www.hp.com/recycle>.

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